

I'll Huff and Puff and Blow Your House Down

1st Grade

Background:

This lesson is an end of unit culminating task that is intended to enrich text to self-connection after reading “The Three Little Pigs”.

The student’s ability to choose what materials will be needed to construct a house for a pig that will withstand the wind (hairdryer). The house must withstand three gusts from the hairdryer without compromising the structure of the dwelling. Before construction, students will be exposed to a variety of building materials as well as a deep discussion on what types of homes are built in certain areas to withstand the local elements.

Standards:

NGSS

- K-2-ETS1-1- Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

Disciplinary Core Idea

ETS1.C: Optimizing the Design Solution

Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

Science and Engineering Practices

Analyzing and Interpreting Data

Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Analyze data from tests of an object or tool to determine if it works as intended.

Nature of Science

Scientific Investigations Use a Variety of Methods

Scientific Knowledge is Based on Empirical Evidence

Scientific Knowledge is Open to Revision in Light of New Evidence

Science is a Way of Knowing

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

Science is a Human Endeavor

Science Addresses Questions About the Natural and Material World

CCSS

ELA/Literacy

RI.2.1-Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1)

W.2.6-With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1)

W.2.8-Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1)

Mathematics

MP.2-Reason abstractly and quantitatively. (K-2-ETS1-1)

MP.4-Model with mathematics. (K-2-ETS1-1)

MP.5-Use appropriate tools strategically. (K-2-ETS1-1)

2.MD.D.10-Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1)

Craft and Structure

4. Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.

5. Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.

6. Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.

Writing Standards

2. Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.

Production and Distribution of Writing

5. With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed.

Research to Build and Present Knowledge

7. Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions).

8. With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Engaging Contexts:

You have been selected to build and design a house for the three little pigs to retreat to. The wolf is in on his way! You only have 30 minutes to select your materials, construct your house, and test it for durability! How will you record your data? How long will your house last? Will your pig be safe? What will you do to improve your structure?

Justification:

Allowing students to design and build a safe haven for the pigs creates a connection to the story. The students relive the building of the houses as if they were the pigs. The students will struggle through similar emotions that will be recreated as they build and construct their homes within a time constraint. The students will then record their data depending on how the dwelling holds up to the force of the wind as well as compare it with peers. Students will create a model on paper illustrating the measurements of their completed dwelling. The group work will create authentic discussion as well as accountable talk.

ELA standards are addressed through reading nonfiction texts about building materials as well as the fiction text “The Three Little Pigs”. Writing is incorporated through the justification process and explaining how the dwelling was built through the how to process. Technology is used throughout the design process as it is used to learn about building materials in other areas depending on the elements. Engineering is at the heart of the lesson. Engineering correlates with the objectives as the students design a new home for a pig.

Objectives:

Students will be able to:

- design a safe dwelling from selected materials
- measure their dwelling in inches and centimeters
- gather data from the ability of their houses to withstand the wind
- organize, represent and interpret data from a variety of sources
- compare data with their peers dwellings ability to withstand the force of the wind
- support their enhancements to their houses by justifying its relevance
- compile data and relevant research in order to improve the durability of their houses
- report their results to peers

Lesson Plan

Engage:

Explore:

Explain:

Sample rubric for group work

Category	Exemplary (3 pts)	Proficient (2 pts)	Partially proficient (1 pt)	Unsatisfactory (0 pts)
Focus on Task	Stays on task.	Stays on task most of the time.	Group members need to remind you to stay on task.	Consistently lets others do the work.
Work Habits	Completes work on time and is on time for group meetings	Completes most work on time and is generally on time for meetings.	Is late for most meetings and only completes some work on time.	Does not attend or is late for meetings and does not complete work.
Listening and discussing	Is respectful in discussions and helps the group solve problems.	Is respectful in discussions but not actively helping solve problems.	Has a hard time letting others voice opinions.	Does not listen to others and tries to block problem solving if group idea is different from theirs.
Research	Research produces information that helps group meet goals.	Most research is helpful for group.	Sometimes has research that is useful for group.	Almost never produces useful research.
Problem solving	Actively works to solve problems by suggesting possible solutions.	Works to improve ideas of others but does not generate own ideas.	Does not contribute ideas but will try other's ideas.	Does not help with problem solving.
Group teamwork	Completed all group assigned tasks, contributed to discussions and used personal skills to help group reach goal.	Performed most group assigned tasks and contributed to group discussions and problem solving activities.	Performed some of the group assigned tasks and contributed sometimes to discussions and problem solving activities.	Did not perform any group assigned tasks and contributed very little to group discussions and problem solving activities.

Elaborate:

A sample rubric:

Areas Assessed	Excellent Work!	Good work!	On your way!	Not quite there yet.
Organization	All information is neatly presented and easy to understand and interpret.	Most information is neatly presented and can be understood and interpreted.	Some information is neatly presented and some of it is easy to understand and interpret.	Most information is not neat and is hard to understand or interpret.
Content	Poster contains all materials and evidence to answer the questions asked.	Poster contains most materials and evidence to answer the questions asked.	Poster contains only some of the material and evidence.	Poster is missing many of the necessary material and evidence.
Teamwork	All members of the group contributed to the poster.	Most of the members of the group contributed.	Only a few members of the group contributed.	One member of the group put the poster together.
Presentation	All members of the group were actively involved in the presentation.	Most members of the group were involved in the presentation.	Only a few members participated.	Only one member did the presentation.

Evaluation: