

Three Little Pigs: Design Challenge

Welcome your students to the session and let them know that today they will be exploring building and construction - to help the Three Little Pigs! Take a few minutes at the start of the class to either read the story book "The Three Little Pigs" or to run through the story with the group, possibly even getting the students up to act out the story and work out a bit of extra energy. After reading, ask students what they think is needed to build a strong house. Consider linking this to different weather conditions—what would you need if you live in a windy climate? A hot climate? A snowy and cold climate? Divide your participants into three groups and introduce the Three Little Pigs Design Challenge: Can your team design and build a house that the big, bad wolf can't blow down? If time allows, offer to switch stations, or revise and rebuild, or to combine materials for one big build! Allow time for students to help you clean up before dismissal.

Three Little Pigs Design Challenge

1. Read *The Three Little Pigs* out loud to your class.
2. After reading, ask students what they think is needed to build a strong house. Consider linking this to different weather conditions—what would you need if you live in a windy climate? A hot climate? A snowy and cold climate?
3. Divide your class into three groups and introduce the Three Little Pigs Design Challenge: Can your team design and build a house that the big, bad wolf can't blow down?
 1. Requirements:
 - i. Your house must be built on the provided foundation (must be at the bottom of the house) and using the roof (must be at the top of the house) provided.
 - ii. You can only use the materials provided to your team.
 - iii. Everyone must work together and all ideas need to be considered.
 - iv. You only have 20 minutes to build your house and have it tested.
4. Tell students you will be the "Big, Bad Wolf" and show them your biggest breath so they know the force of the wind (huffing and puffing). You may also move to predetermined locations measuring from further to closer to the house.
5. Hand out each team's assigned material to use. (Note: If you have larger classes, you can divide the students into more than three groups and add additional building materials such as different straw sizes, different popsicle stick sizes, and different paper stock weight sizes. But every team needs to use the same foundation and the same room.)
6. Encourage students to draw or sketch their ideas before building.
7. After 20 minutes, students must bring their house to the "testing zone." Note: their house can face any direction, but the wind must always come from the same place. If the house is still standing after 20 seconds, success!
8. OPTIONAL: If one team is using wood bricks/blocks, be sure to rotate through the stations, giving each team a turn with this easiest of materials. Or, leave the bricks for after teams have worked with more challenging materials and then allow time for a group build using the wooden bricks/blocks.

Discussion

Give students time to reflect in their group and then discuss as a class:

- What material worked the best?
- Why do you think some materials were more effective than others?
- Was your house able to withstand the huffing and puffing of the big bad wolf?
- How could you improve your design?

- Extension: What are all of the different jobs that are needed in order to build a house (make a list together)? How many of these jobs require an understanding of science, technology, engineering, and/or math (place a star next to these jobs)?



