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Science Experiences That Come To You

STEM Gingerbread House Building Challenge

Give playing with your food a whole new meaning!

Foodtopia needs to build new Gingerbread homes for their foodies that are safe and beautiful. They have many sweets, fruits, and vegetables available to build their homes, but they need your **engineering** help to discover the best materials to design and construct their Gingerbread homes. The foodies need your help!

The foodies' homes need **walls** to protect them from wind, a **roof** to keep them dry, and a **door** so they can get in and out of their house. Foodies need their homes to be strong, so they last a long time and keep them safe from the weather. Foodies also like their Gingerbread homes to be colorful and beautiful.

Engineering Project - Design a strong, stable, and colorful Gingerbread House

Ingredients & Supplies:

- **Paper and Pencil for Design Planning**
 - You will need to plan out your design before you get started.

- **Food Building Materials**
 - Gingerbread
 - Graham Crackers
 - Pretzels
 - Soft Candies (ex. Tootsie Rolls)
 - Hard Candies (ex. Peppermints)
 - Cream Cheese
 - Frosting
 - Chocolate bars (hard or melted)

***If you don't have sweets around the house, fruits and vegetables make great building materials, too!

- **Clean Work Surface**
 - **Cardboard** covered in foil, wax paper or parchment paper

- **Table or desk**
 - You will need space to work and keep your building materials

- **Construction Tools**
 - Spoon
 - Knife (with parental supervision)
 - Spatula



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- o plastic zipper bag for piping soft materials like icing

Once you have your materials together, it is time to **PLAN** your design!

I am building a Gingerbread house that is

List the **materials** you have available. What **problem(s)** will they help **solve**?

Building Materials	Use	Problem it solves
Graham crackers	Build flat parts of my house the walls, roof and floor	Makes the house strong and safe from weather
Icing	Make food stick together	Makes the house strong



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DESIGN - Draw a picture of what your Gingerbread house will look like when it is built.

BUILD - Use the materials you selected to build your Gingerbread house. Ask an adult to assist you in construction. Invite some friends to help build your Gingerbread house!

EVALUATE

Now that our house is built, we need to look back at the problem we wanted to solve. How can you test your house to see if it is strong and safe?

REFLECT

What goals did you set for your design?



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What did the Foodtopia foodies want for their Gingerbread houses?

Did your house meet your goals? _____

Is there anything you could change to make it better?

Imagine a new, improved version of your Gingerbread house and draw it below.
Note the changes you made on your drawing.

Engineers are always looking for ways to improve the world around them, and they follow the same steps that you did today for your Gingerbread house. What will you engineer next?



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