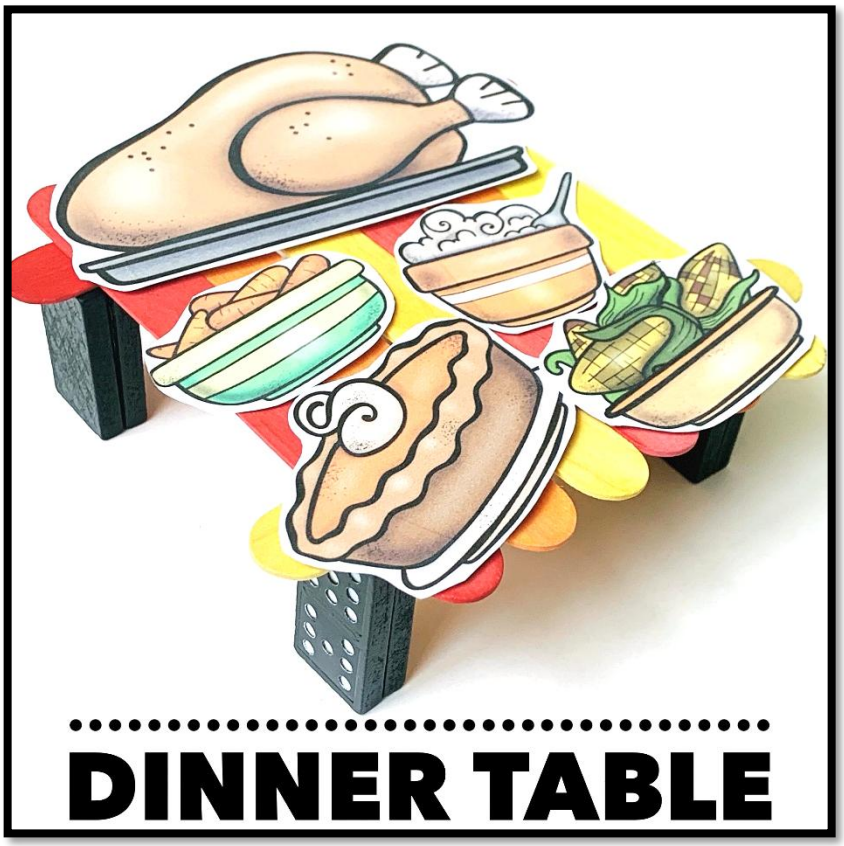
Dinner Table STEM



LOW PREP
THANKSGIVING
STEM CHALLENGE

K-5TH GRADE

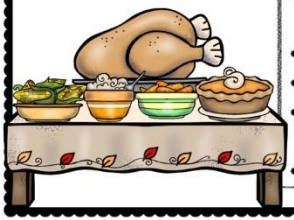
CREATED BY BROOKE BROWN

- ✓ SIMPLE SUPPLIES
- ✓ INTERACTIVE ANCHOR CHARTS
- ✓ VISUAL VOCABULARY
- ✓ QR CODE RESEARCH
- ✓ REFLECTION QUESTIONS

Dinner Table

Your family prepared too much food for Thanksgiving!

Construct a dinner table that will hold all the Thanksgiving dishes without overlapping.



MATERIALS:

- Dominoes
- Popsicle sticks
- Copies of Thanksgiving dishes with food cut apart
- Rulers

Dinner Table

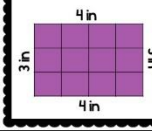
REAL WORLD EXAMPLES

What is similar? What is different?

Important Features of Tables

How to find PERIMETER

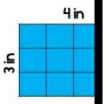
To find the perimeter of a shape, measure the lengths of each side and then add them together.



3 in + 4 in + 3 in + 4 in = 14 in

How

To find the ar number of s multiply th



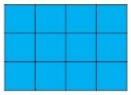
EXPLORE WOODWORKING

FURNITURE MAKERS

HOW TABLES ARE MADE

WOODWORKING TOOLS FOR KIDS

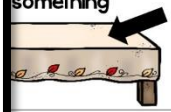
AREA AND PERIMETER



WORDS TO KNOW

surface

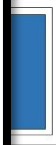
er face or layer something



balance

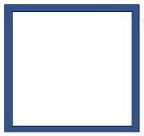
equal distribution of weight

rea

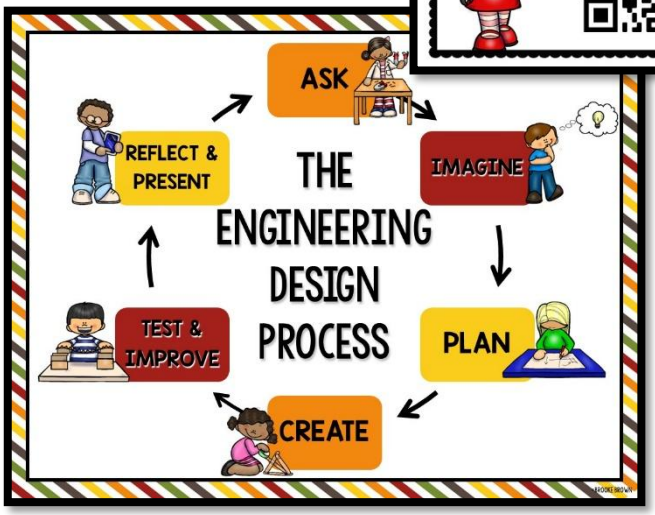


the size of a surface

perimeter



the boundary of a closed geometric shape

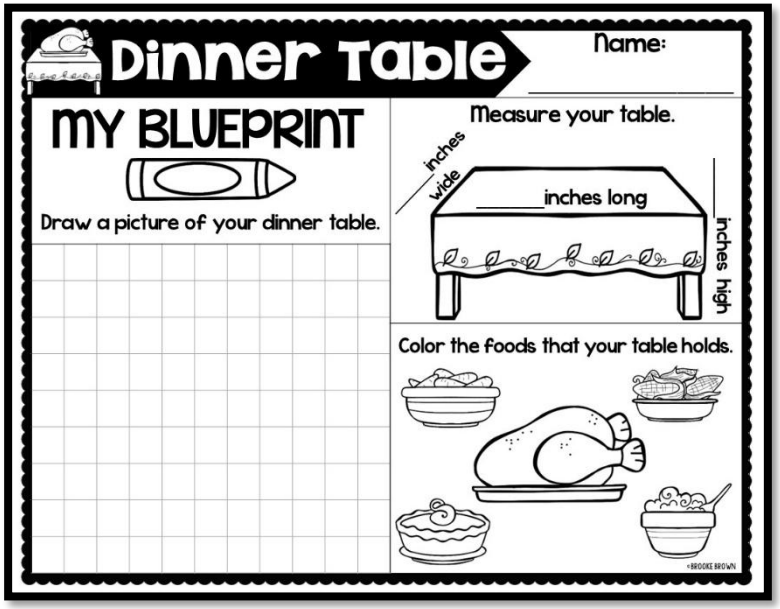


'S REFLECT!

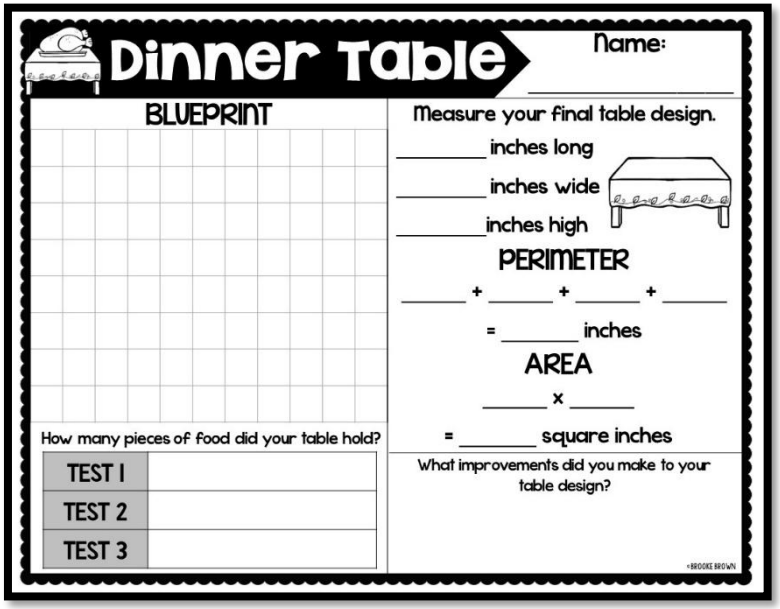
- What was most difficult about this challenge?
- How does the shape of the table surface affect how much food it will hold?
- How did you make your table as sturdy and as balanced as possible?
- What improvements did you make to your table design?
- If you were to build a full-sized table, what materials/design would you use and why?
- If we completed this challenge again, what would you do differently next time?

DIFFERENTIATED RECORDING SHEETS FOR K-5TH GRADE

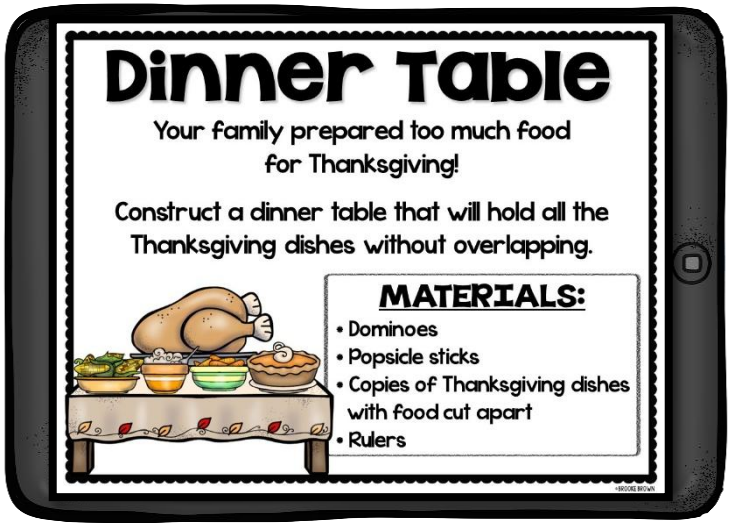
LOWER GRADES

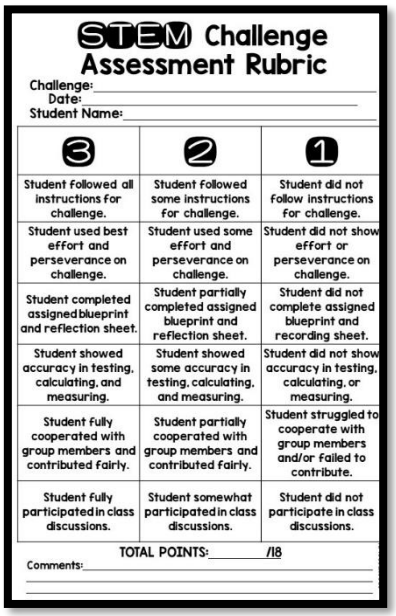


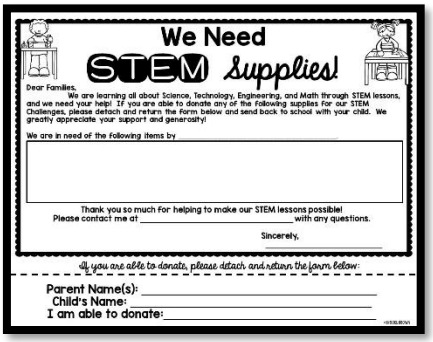
UPPER GRADES



DIGITAL GOOGLE SLIDES NOTEBOOK







SAY *Hello* TO STRESS-FREE STEM!

SUPPLIES CHECKLIST

STEM CHALLENGE	ITEM	NUMBER PER GROUP	I HAVE IT
Dinner Table	dominoes	24	
	popsicle sticks	20	
	food cutouts	1 set	
	ruler	1	

STANDARDS ALIGNMENT

CHALLENGE	ENGINEERING	SCIENCE	MATH
Dinner Table	K-2-ETS1 Engineering Design: K-2-ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3 3-5-ETS1 Engineering Design: 3-5-ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3	•Action/Reaction forces, tension and compression forces, weight and balance, stability, surface area and perimeter	MP1: Make sense of problems and persevere in solving them MP2: Reason abstractly and quantitatively MP4: Model with mathematics MP5: Use appropriate tools strategically MP6: Attend to precision MP7: Look for and make use of structure

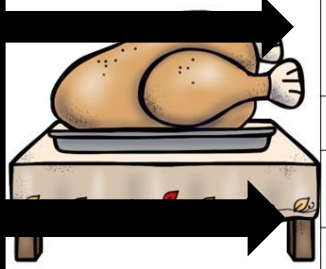
SUPPLIES CHECKLIST & STANDARDS ALIGNMENT

CHALLENGE OVERVIEW

MATERIALS

STEP BY STEP INSTRUCTIONS

STEM CHALLENGE: Dinner Table



OVERVIEW: Students will use limited materials to construct a model of a dinner table that holds as many Thanksgiving dishes as possible on the surface. They will likely figure out that the dominoes serve well as the legs of the table and the popsicle sticks can balance on the top for the surface. Ensure that they allow enough "legroom" underneath the table and attempt to fit all food dishes on top without overlapping. Younger students can measure the dimensions of their table and older students can measure perimeter and area.

KEY SKILLS: Engineering tables, Balance/Weight Distribution, Measurement, Surface Area, Perimeter

SUGGESTED READ ALOUDS: Our Table by Peter H. Reynolds, The Night Before Thanksgiving by Natasha Wing, Perimeter, Area, and Volume: A Monster Book of Dimensions by David A. Adler

MATERIALS PER GROUP: 24 dominoes, 20 popsicle sticks, 1 set of food cutouts, ruler

LESSON PLAN

1. Activate students' prior knowledge by asking them to share what they already know about table designs. Ask them to brainstorm different styles and important parts of tables.
2. Share and discuss the videos on "Explore Woodworking."
3. Hold a class discussion, using the teacher chart and real world examples to guide student thinking. (You can project the chart on an interactive whiteboard or document camera.) Record their ideas on the teacher chart.
4. Introduce the STEM challenge and permitted materials.
5. Introduce and discuss key vocabulary cards related to the challenge.
6. Have students sketch blueprints of their designs on their recording sheets.
7. Distribute materials and allow students 30-45 minutes with partners or small groups to construct their tables, determine how much food will fit on the surface, and measure the dimensions and/or perimeter and area.
8. Hold a whole class closing discussion and reflection, allowing students to share their table designs. Use the "Let's Reflect" poster to guide the discussion.

KEY SKILLS

SUGGESTED READ ALOUDS