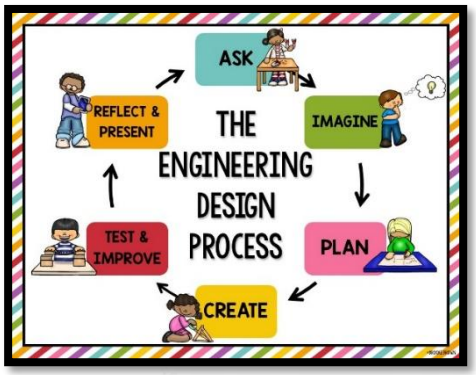
September STEM

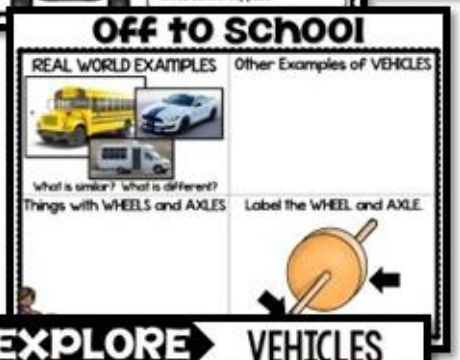
Low Prep Back to School Challenges

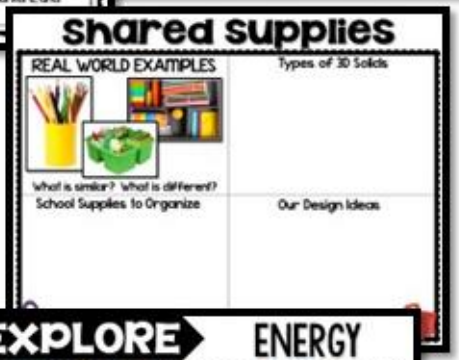
CREATED BY BROOKE BROWN

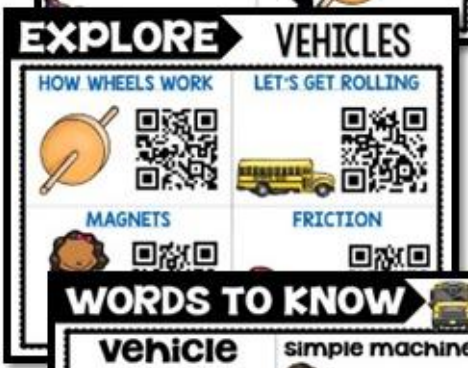
3 LOW PREP STEM CHALLENGES + BONUS BRAINBUILDER ACTIVITY

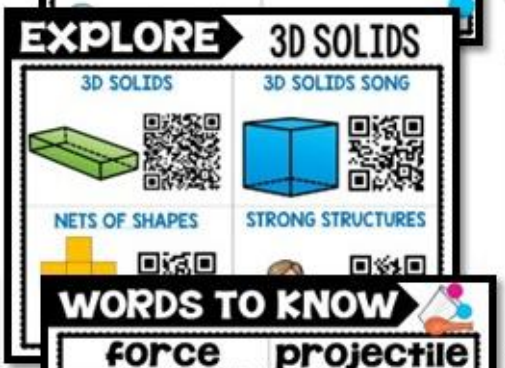
- ✓ SIMPLE SUPPLIES
- ✓ INTERACTIVE ANCHOR CHARTS
- ✓ VISUAL VOCABULARY
- ✓ QR CODE RESEARCH

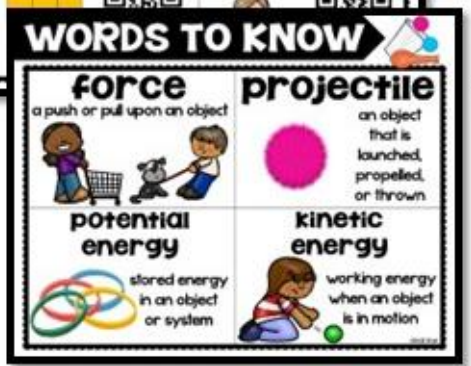


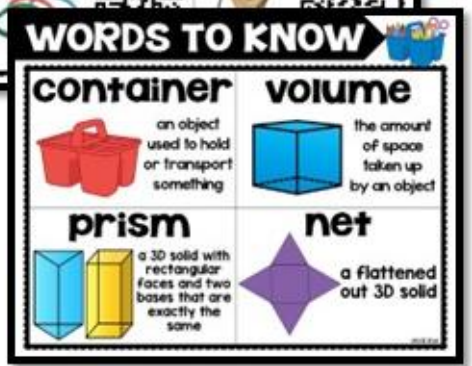




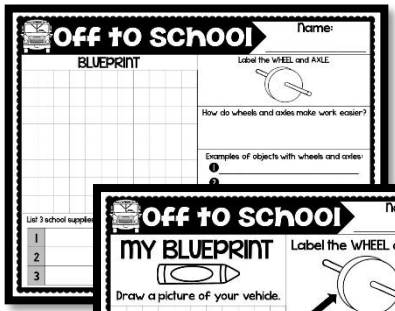


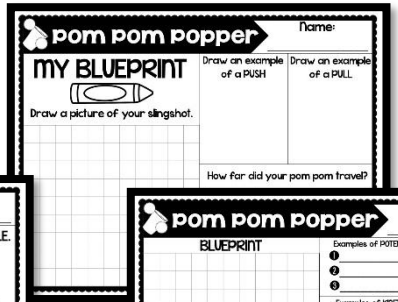


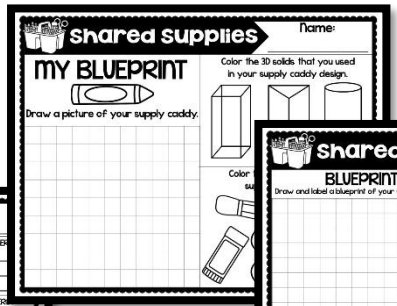


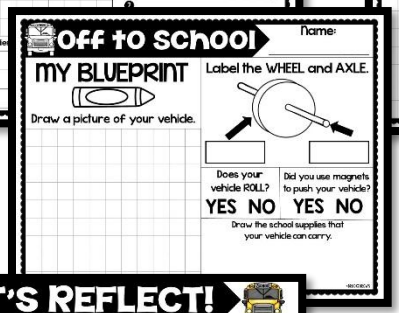


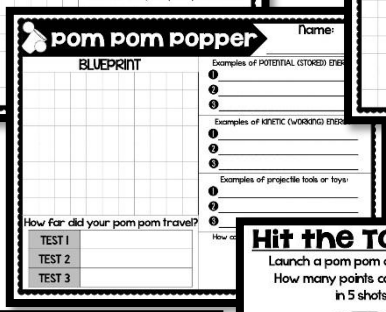
DIFFERENTIATED RECORDING SHEETS FOR K-5TH GRADE

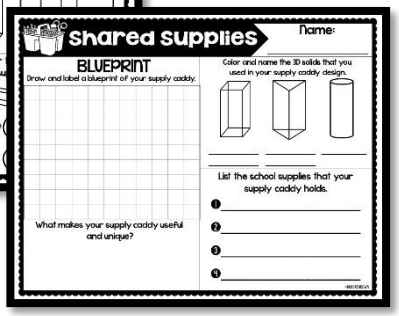


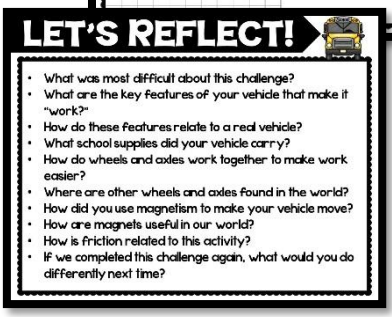


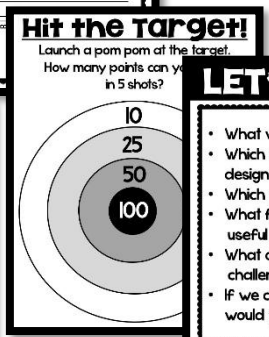


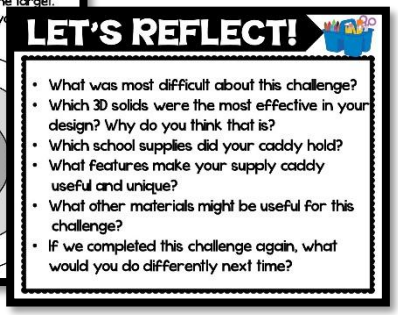


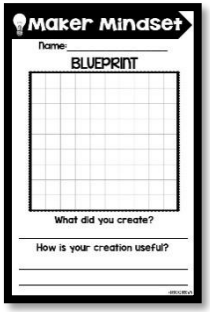




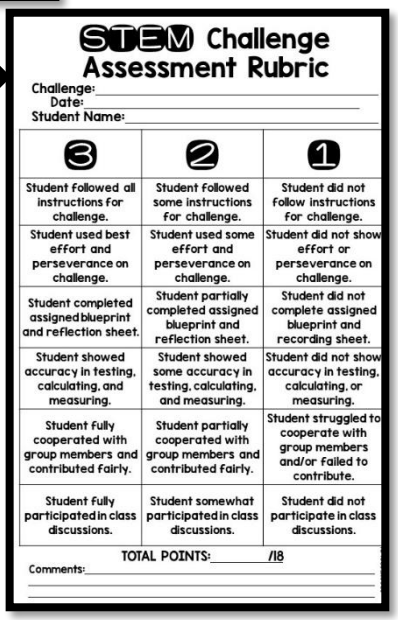








DIGITAL GOOGLE SLIDES NOTEBOOK



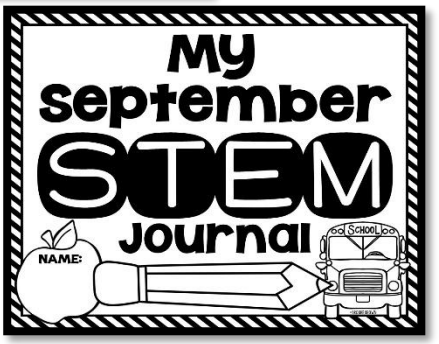
STEM Challenge Assessment Rubric

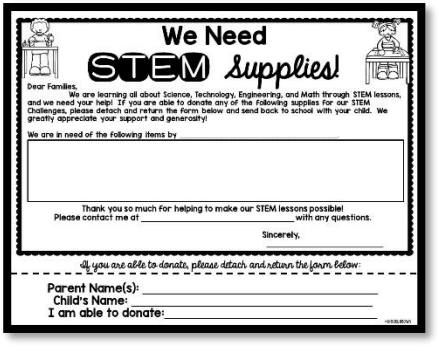
Challenge:
Date:
Student Name:

3	2	1
Student followed all instructions for challenge.	Student followed some instructions for challenge.	Student did not follow instructions for challenge.
Student used best effort and perseverance on challenge.	Student used some effort and perseverance on challenge.	Student did not show effort or perseverance on challenge.
Student completed assigned blueprint and reflection sheet.	Student partially completed assigned blueprint and reflection sheet.	Student did not complete assigned blueprint and recording sheet.
Student showed accuracy in testing, calculating, and measuring.	Student showed some accuracy in testing, calculating, and measuring.	Student did not show accuracy in testing, calculating, or measuring.
Student fully cooperated with group members and contributed fairly.	Student partially cooperated with group members and contributed fairly.	Student struggled to cooperate with group members and/or failed to contribute.
Student fully participated in class discussions.	Student somewhat participated in class discussions.	Student did not participate in class discussions.

TOTAL POINTS:_____/18

Comments:





SAY *Hello* TO STRESS-FREE STEM!

SUPPLIES CHECKLIST

SEPTEMBER SUPPLIES CHECKLIST

STEM CHALLENGE	ITEM	NUMBER PER GROUP	I HAVE IT
Off to School	vehicle template	1	
	scotch tape	1 roll	
	straws	2	
	Fruit Loops cereal	1 cup	
	scissors	1	
	magnets	2	
	markers and crayons (optional to decorate)	small tub	
Pom Pom Popper	plastic cup (any size)	1	
	balloon (large enough for cup)	1	
	pom pom	1-2	
	tape measures or meter sticks	1	
	scissors	1	
	markers (optional to decorate)	small tub	
	paper target	1	
Shared Supplies	copy paper or construction paper	20 sheets per group	
	tape	1 roll	
	various school supplies such as pencils, crayons, scissors, and glue sticks	at least 12 items	
	Markers and crayons (optional to decorate)	small tub	
BONUS BRAINBUILDER: Maker Mindset	Baggie with various items and supplies inside such as a plastic spoon, paper plate, rubber band, craft stick, pipe cleaner, construction paper, cup, straw, tape, scissors etc.	1 bag	

©BROOKE BROWN

STANDARDS ALIGNMENT

SEPTEMBER STANDARDS ALIGNMENT

CHALLENGE	ENGINEERING	SCIENCE	MATH
Off to School	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	K-PS2 Motion and Stability: Forces and Interactions 3-PS2 Motion and Stability: Forces and Interactions 5-PS2 Motion and Stability: Forces and Interactions	MP1: Make sense of problems and persevere in solving them MP2: Reason abstractly and quantitatively MP4: Model with mathematics MP5: Use appropriate tools strategically
Pom Pom Popper	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	K-PS2 Motion and Stability: Forces and Interactions 3-PS2 Motion and Stability: Forces and Interactions 5-PS2 Motion and Stability: Forces and Interactions	MP1: Make sense of problems and persevere in solving them MP2: Reason abstractly and quantitatively MP4: Model with mathematics MP5: Use appropriate tools strategically
Shared Supplies	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	2.Structure and Properties of Matter	MP1: Make sense of problems and persevere in solving them MP2: Reason abstractly and quantitatively MP4: Model with mathematics MP5: Use appropriate tools strategically MP7: Look for and make use of structure.
BONUS BRAINBUILDER: Maker Mindset	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	2.Structure and Properties of Matter	MP1: Make sense of problems and persevere in solving them MP2: Reason abstractly and quantitatively MP4: Model with mathematics MP5: Use appropriate tools strategically MP7: Look for and make use of structure.

©BROOKE BROWN

CHALLENGE OVERVIEW

MATERIALS

STEP BY STEP INSTRUCTIONS

KEY SKILLS

SUGGESTED READ ALOUDS

STEM CHALLENGE: Off to School

OVERVIEW: For this challenge, students will explore wheels/axles and magnetism by creating a simple rolling vehicle of their choice. A foldable template is provided for the body of the vehicle, and students will use Fruit Loops cereal for the wheels and straws for the axles. Make sure that students search for Fruit Loop pieces with larger holes that will be a better fit for the straws. They will attach the wheels and axles to the bottom part of the vehicle body by taping paper flaps over them, ensuring that the wheels and axles still rotate freely. (See photos on following page.) They will then place a magnet inside the body of the vehicle and use the other magnet to repel it and push the vehicle forward. Once the vehicle is rolling effectively, students will place a variety of small school supplies inside the body of the vehicle to see if it carries weight.

KEY SKILLS: Simple Machines (Wheels and Axles), Engineering vehicles , Friction, Magnetism

SUGGESTED READ ALOUDS: Pete the Cat: The Wheels on the Bus by James Dean, If I Built a Car by Chris van Dusen, Tires, Spokes, and Sprockets: A Book About Wheels and Axles by Michael Dahl, Don't Let the Pigeon Drive the Bus by Mo Willems

MATERIALS PER GROUP: 1 vehicle template, Scotch tape, 2 straws, small cup of Fruit Loops cereal, 2 magnets, scissors **OPTIONAL:** markers or crayons to decorate vehicles

LESSON PLAN

1. Activate students' prior knowledge by asking them to share what they already know about vehicles, specifically wheels and axles and how they make work easier.
2. Share and discuss the videos on "Explore Vehicles."
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 45-60 minutes with partners or small groups to construct their vehicles, test them with magnets, and test their vehicles' ability to hold the weight of various small school supplies.
8. Hold a whole class closing discussion and reflection, allowing students to share their designs. Use the "Let's Reflect" poster to guide the discussion.

©BROOKE BROWN

CHECK OUT MY ALL YEAR BUNDLE WITH 9 MONTHS OF STEM ACTIVITIES!

OVER 40% OFF!

I NEED THIS