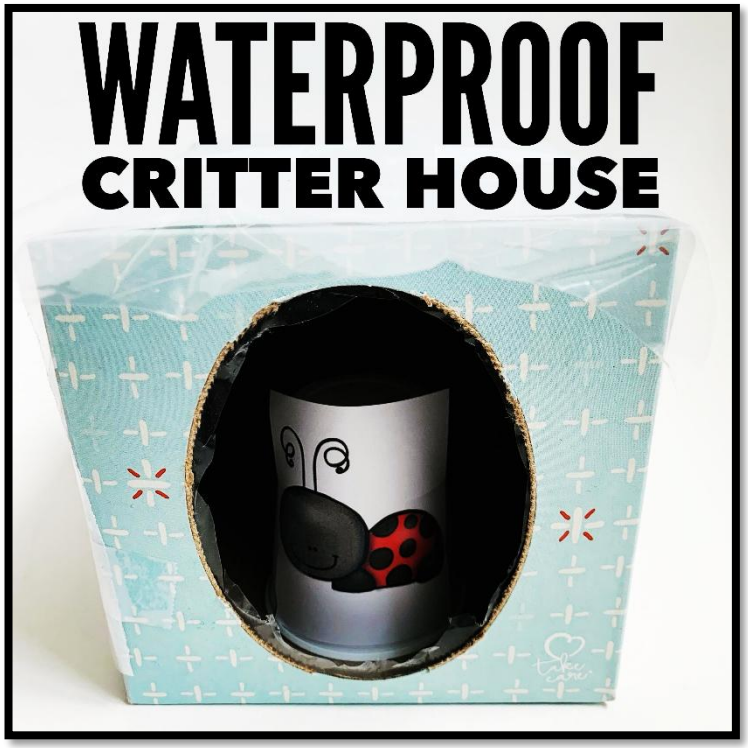
Waterproof Critter House

STEM



LOW PREP
END OF THE YEAR
STEM CHALLENGE

K-5TH GRADE

CREATED BY BROOKE BROWN

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

waterproof critter House

You've caught some insects in your backyard and they need to be kept dry during a rainstorm.

Construct a waterproof shelter for your insects that contains materials for survival.

MATERIALS:

- Empty tissue boxes
- Paper plates
- OPTIONS FOR WATERPROOF MATERIALS: large Ziplock bags, trash bags, plastic wrap, plastic table cloths
- Outdoor materials such as rocks, leaves, dirt, and sticks
- Paper critters (2-3 per group)
- Spray bottle with water

waterproof critter House

REAL WORLD EXAMPLES	Types of Insects
 What is similar? What is different?	
Where Insects Live	What Insec

EXPLORE INSECTS

INSPECT AN INSECT	UNDER A ROCK
AME	10 INTERESTING INSECTS

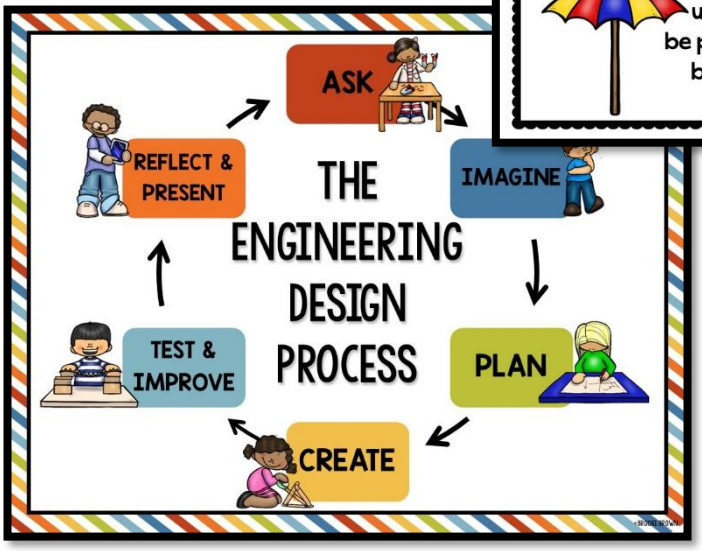
WORDS TO KNOW

shelter — a dwelling or home designed for protection

terrarium — a clear container that houses plants, insects, reptiles, or amphibians

waterproof — unable to be penetrated by water

habitat — the natur… of …

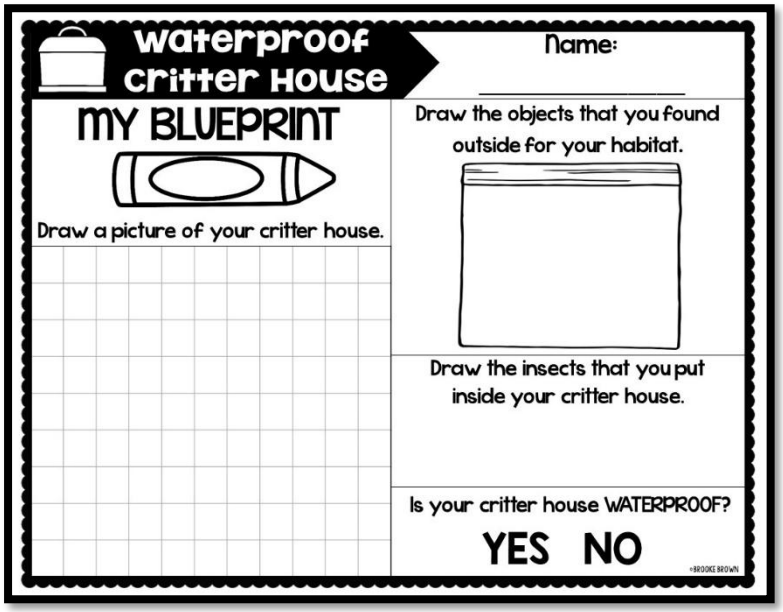


LET'S REFLECT!

- What was most difficult about this challenge?
- How did you design your critter house to be a good habitat for your insects?
- What types of items did you include in your critter house to help your insects survive?
- Which waterproof material was most effective and why do you think so?
- What types of waterproof materials do you find on real shelters?
- What are some waterproof materials that are found in nature or animal coverings?
- If we completed this challenge again, what would you do differently next time?

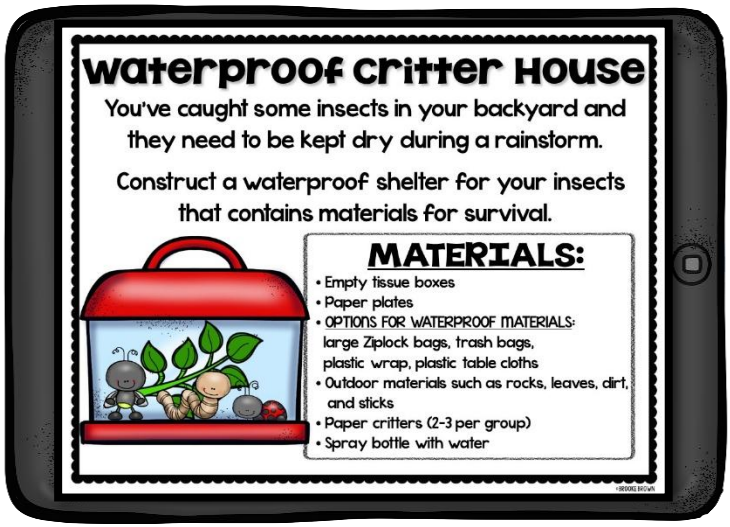
DIFFERENTIATED RECORDING SHEETS FOR K-5TH GRADE

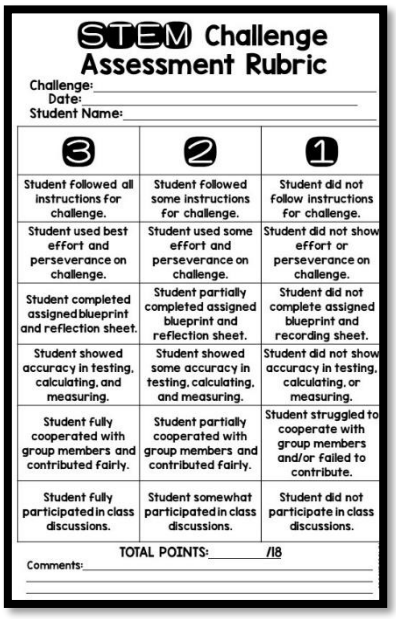
LOWER GRADES

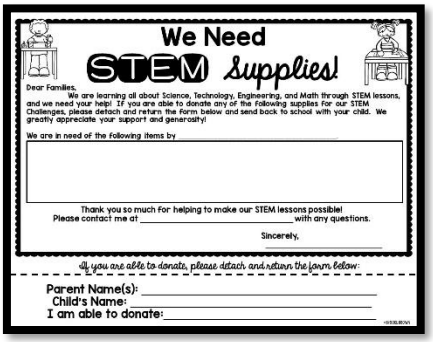


UPPER GRADES

DIGITAL GOOGLE SLIDES NOTEBOOK







SAY *Hello* TO STRESS-FREE STEM!

SUPPLIES CHECKLIST

STEM CHALLENGE	ITEM	NUMBER PER GROUP	I HAVE IT
Waterproof Critter House	empty tissue box	1	
	OPTIONS for waterproof materials: gallon ziplock bags, trash bags, plastic tablecloths, plastic wrap	variety	
	paper plates	1	
	scissors	1	
	tape	3 feet	
	mini cups with paper critters taped to the front	1 set	
	spray bottle with water	1	

STANDARDS ALIGNMENT

CHALLENGE	ENGINEERING	SCIENCE	MATH
Waterproof Critter House	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-LS1 From Molecules to Organisms: Structures and Processes K-ESS2 Earth's Systems LStructure, Function, and Information Processing 3-LS4 Biological Evolution: Unity and Diversity 3-ESS3 Earth and Human Activity	MP1: Make sense of problems and persevere in solving them MP2: Reason abstractly and quantitatively MP4: Model with mathematics MP5: Use appropriate tools strategically

SUPPLIES CHECKLIST & STANDARDS ALIGNMENT

CHALLENGE OVERVIEW

MATERIALS

STEP BY STEP INSTRUCTIONS

KEY SKILLS

SUGGESTED READ ALOUDS

STEM CHALLENGE: waterproof critter House

OVERVIEW: For this challenge, students will create a simple habitat for a small insect or "critter" such as a ladybug, ant, or worm. They will cover a tissue box with a variety of waterproof materials such as thick Ziplock baggies, plastic wrap, trash bags, or plastic table cloths, ensuring that air holes are left for their critter to breathe. They will gather a variety of outdoor materials, place a paper critter inside, and test the shelter by spraying it with water to see if it keeps their critter dry.

KEY SKILLS: Engineering Shelters, Insect habitats and needs, Waterproof devices

SUGGESTED READ ALOUDS: Bugs A to Z by Caroline Lawton, The Bug Book by Sue Fliess, On Beyond Bugs by Tish Rabe

MATERIALS PER GROUP: empty tissue box, paper plate, tape, scissors, paper critters taped to mini cups, spray bottle with water, outdoor materials such as rocks, dirt, leaves, and sticks, OPTIONS for waterproof materials: gallon ziplock bags, trash bags, plastic tablecloths, plastic wrap

LESSON PLAN

1. Activate students' prior knowledge by asking them to share what they already know about manmade insect homes. Ask them to share examples of small animals and insects that can be survive in artificial habitats and what those habitats need.
2. Share and discuss the videos on "Explore Insects."
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. Allow students 10-15 minutes to gather outdoor materials for their critter house in a baggie.
7. 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 critter houses, place paper critters inside, and test them to ensure they are waterproof.
8. Hold a whole class closing discussion and reflection, allowing students to share their critter houses. Use the "Let's Reflect" poster to guide the discussion.