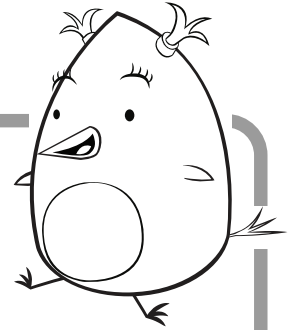


Name _____

Date _____

STEM Design Challenge Cards



STEM design challenges are prompts that ask learners to build something new for a specific reason or purpose.

Directions: Print these cards double-sided and cut them out. Then choose a design challenge to complete.



How can I build an unsinkable boat with only two materials?

How can I invent a new sport with kitchen tools?

How can I make something useful with a cereal box?

How can I build a piece of furniture with up to five pieces?

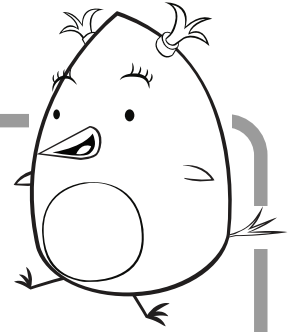
How can I create a sculpture that makes music in the wind?

How can I design shoes inspired by nature?

How can I make a tool to help me _____?
(Fill in the blank!)

How can I solve a problem using just the materials on this table?
(Choose 5-8 materials from your home.)

STEM Design Challenge Cards



(Backside of the cards)

Directions: Use these inquiry-based questions to help you think through all adjustments and conclusions you make about your design.



Challenge: New Sport

- What is the purpose of the game?
- How would someone win?
- Justify why you would have certain rules.
- Can you think of another way to make the game more challenging?

Challenge: Unsinkable Boat

- What is the size of the boat? What things would fit in the boat?
- Can the boat float for 10, 30, and 60 minutes?
- How much weight can the boat maintain?
- Can you think of other materials you could use to make a new boat?

Challenge: New Furniture

- What is the purpose of the furniture?
- Can the new piece of furniture support your weight?
- What is the maximum amount of weight this piece of furniture can hold? How do you know? How could you measure the max weight?
- Can you use a different material to make the furniture stronger?

Challenge: Purposeful Cereal Box

- What is the purpose of your design?
- How does the size of your chosen cereal box limit what you can create?
- How does your design help someone?
- What materials did you use in addition to the cereal box?
- What materials would you like to add and why?

Challenge: New Shoes

- What is the purpose of the shoes?
- When would someone use these shoes?
- How could you use these shoes in various environments?
- Are the shoes appropriate for exercise or the beach?

Challenge: Sculpture

- What materials did you use?
- Does the sculpture stand up on its own?
- How tall is the sculpture?
- How does it play music? When or how long does the music play?
- Can the sculpture withstand outside weather?

Challenge: Solve a Problem

- What problem do you want to solve?
- What's your plan to solve the problem?
- Can this tool solve more than one problem?
- What materials do you wish you had to make your invention better?

Challenge: Helpful Tool

- What does your tool help you do?
- How does the size affect its usefulness?
- Why create this tool instead of using something that already exists?
- Can you use this tool in more than one way?
- Is this tool child-friendly or does it require adult supervision?