CAEMI Breakout:
Boats that Float!
Boats that Float!

- **MATERIALS NEEDED:**
  - Materials from CoP #4 Bag:
    - Squares of tin foil
    - Marbles
  - Medium size bowl, plastic bin or tub
  - Water
  - Additional materials: other small objects to try in your boat (ex. Coins, small plastic toys, etc.)
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TYPES OF BOAT

rowboat

sailboat

motorboat

raft

canoe

paddle

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DESIGNS BASED ON CARGO
DESIGNS BASED ON MATERIAL
1ST DESIGN CHALLENGE!
Design a boat that will float and hold some marbles.
2ND DESIGN CHALLENGE!
Design a boat that will float and hold more marbles than your first boat.
What adjustments did you make in your 2nd design and why?
UNIQUE BOATS
FLOATING INSTRUMENT PLATFORM (FLIP)
CHILDREN’S BOOKS

Who Sank the Boat?
Pamela Allen

What Floats In A Moat?
Lynne Berry
Illustrated by Matthew Cordell
MORE BOATS!
3RD DESIGN CHALLENGE!

- Find 2 more items you want to test to see if they sink or float.
- Can you find another item you could use to build a boat?
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ACTIVITY GUIDE

BOATS THAT FLOAT

MATERIALS
- Small squares of aluminum foil
- Ruler
- Plastic tub or bowl filled with water
- Small items such as crayons, pennies to test your boat’s buoyancy

CREATE
Using the aluminum square design a boat that you think will still float when you add objects in it.

OBserve
Add one object at a time to your boat. What happens?

PLAY
Make a boat with a different design. Add the same objects or test buoyancy with different objects.

KEY CONCEPTS
- Physical Science: Explore buoyancy, density and gravity as they relate to floating.
- Engineering: Explore different design concepts as they build their boats.

QUESTIONS TO ASK
- What shapes are you using in your boat design?
- How can you design a boat that will hold the most objects?
- What would happen if you used a different material to build your boat?
- If your boat doesn’t float, what changes can you make to your design that might help it float.

THINGS TO NOTICE
- Child’s joy and excitement as they design and build their boat.
- Child’s wonderment as they float their boat and add objects to it.
- How the child works with the materials.
- What are they curious about?

VIDEO RESOURCES
- Video: Why do ships float?
- Video: Why do ships float?
- Archimedes Principle

CHILDREN’S BOOKS
- Who Sank the Boat? by Pamela Allen
- What Floats in a Boat? by Lynne Barry
The CAEMI Work
How did what another group share relate to your CAEMI work?

INSPIRATION
How might you be inspired by other organizations’ stories?

Connections
What videos connected with you?
COMMUNITY OF PRACTICE LANDMARKS

How will this journey help you chart your path ahead?

BIG IDEAS
shared interest and key issues

COMMUNITY THEMES
LEARNING THEORY
Math Identity and Mindsets
Play-based Learning

PROFESSIONAL NOTICING

HIGH-QUALITY PROFESSIONAL LEARNING
Connecting Foundations and Standards
Adults as Learners

CULTURALLY RELEVANT PEDAGOGY

CHILDREN’S MATH AND SCIENCE
Maker Faire/Tinkering
Spatial Reasoning
Number Sense
Coding

COMMUNITY
relationships and learning

RESOURCES
methods, stories, and tools
After this slide is templates
SECTION TITLE
Presentation Subtitle
Where’s the STEAM?

REFLECTION

QUESTION
TOPIC 1
Description

TOPIC 1
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TOPIC 1
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FOOD FOR THOUGHT

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UNIFYING IDEA

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TOPIC 2
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TOPIC 3
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THANK YOU!

Presenter A, *Title*
Email@AIMScenter.org

Presenter B, *Title*
Email@AIMScenter.org

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REFERENCES

Reference