

NOVEMBER STEM CHALLENGE

Pilgrim Passage



CHALLENGE: Design and construct a “Mini Mayflower” to transport at least 25 passengers across the Atlantic Ocean.

CONSTRAINTS:

-  Boat must hold at least 25 passengers (pennies)
-  Boat must move the length of your bathtub as quickly as possible, without any passengers going overboard or getting wet
-  Each boat can only be made of THREE materials. Tape is a material.

MATERIALS TO CHOOSE FROM: (you only get THREE)

- | | | |
|--|---|--|
|  Jumbo craft sticks |  Masking Tape |  Glue |
|  Rubber bands |  Cardstock/cardboard |  Foil |
|  Straws |  Plastic wrap |  Foam bowl |

DESIGN:

-  Draw a labeled schematic (blueprint or outline) of your design
-  Decide what materials you need and how much of each item. You only get three different kinds of items.

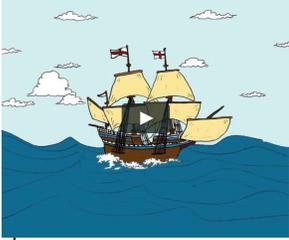
BUILD, TEST, ANALYZE:

-  Did it work how you expected?
-  What changes could you make to improve the Pilgrim transport?
-  Was the material suitable for water? Was the shape good for buoyancy? If your passengers got wet, what changes would keep them dry?

Tips for Teachers:

- ★ Substitute allowable materials to your convenience
- ★ Have students work in small teams to improve communication and collaboration skills
- ★ Adjust required float distance to your convenience
- ★ Pennies could be substituted for marbles, buttons, etc. Any small manipulative you have.

Student Challenge Worksheet



Design Challenge: Design and construct a “Mini Mayflower” to transport at least 25 passengers across the Atlantic Ocean.

Draw the design in the space below and label the materials.

Build: Build your design based on your plan.

Test:

Measure and record the distance your pumpkin travels.

<i>Pilgrim Passage Data Table</i>	Trial			
	1	2	3	4
Did passengers stay dry for full trip?				
Changes needed				

Analyze:

Which float trial went the fastest and kept the passengers driest? WHY did it work so well?