STEAM Resources for Families and Schools

Ian Gelman

Tommy Maloney

Krysta Murdy

Opportunities in STEAM Education

MoL: Engage more families and schools

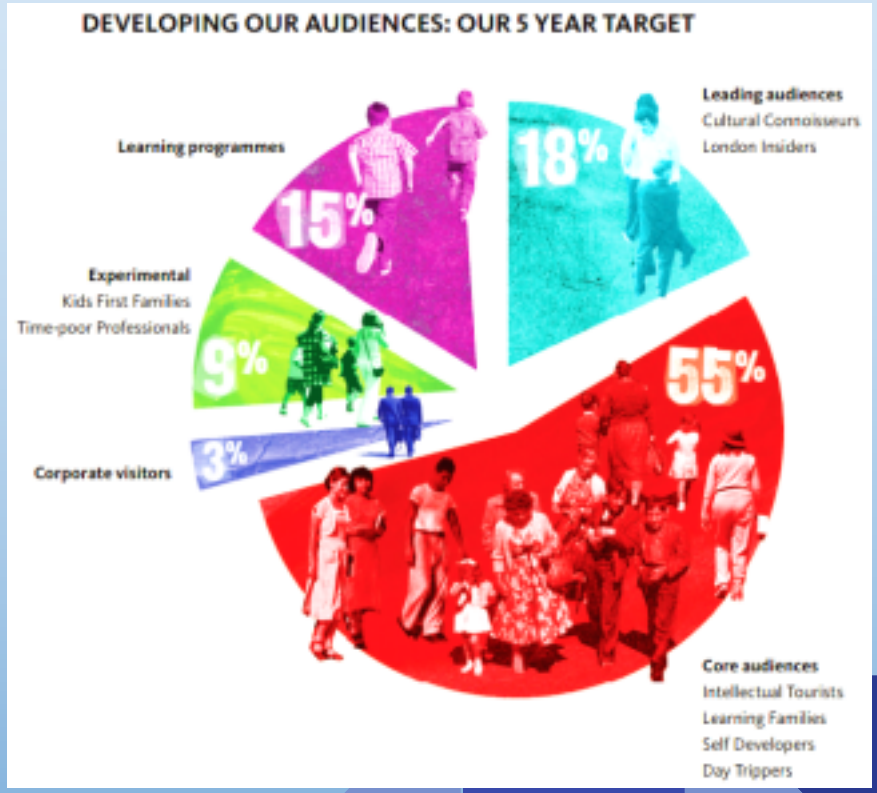
Challenges

- Recent gallery changes
- Text panels

Solution? STEAM!

Why STEAM?

What we made



Identifying State of the Art

- Consulted museum staff
- Experienced program delivery and collected sample materials
- Re-explored MoL Docklands galleries

NATIONAL MARITIME MUSEUM

Ri

SCIENCE MUSEUM

MUSEUM OF LONDON

MOLA

HORNIMAN MUSEUM & GARDENS

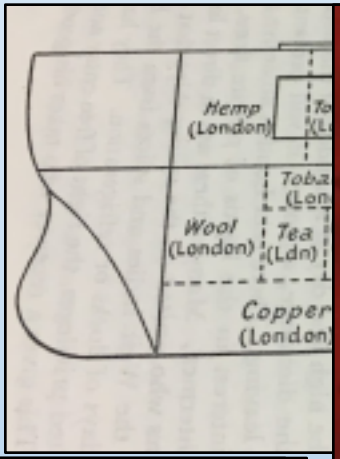
Museum Visits: Key Takeaways

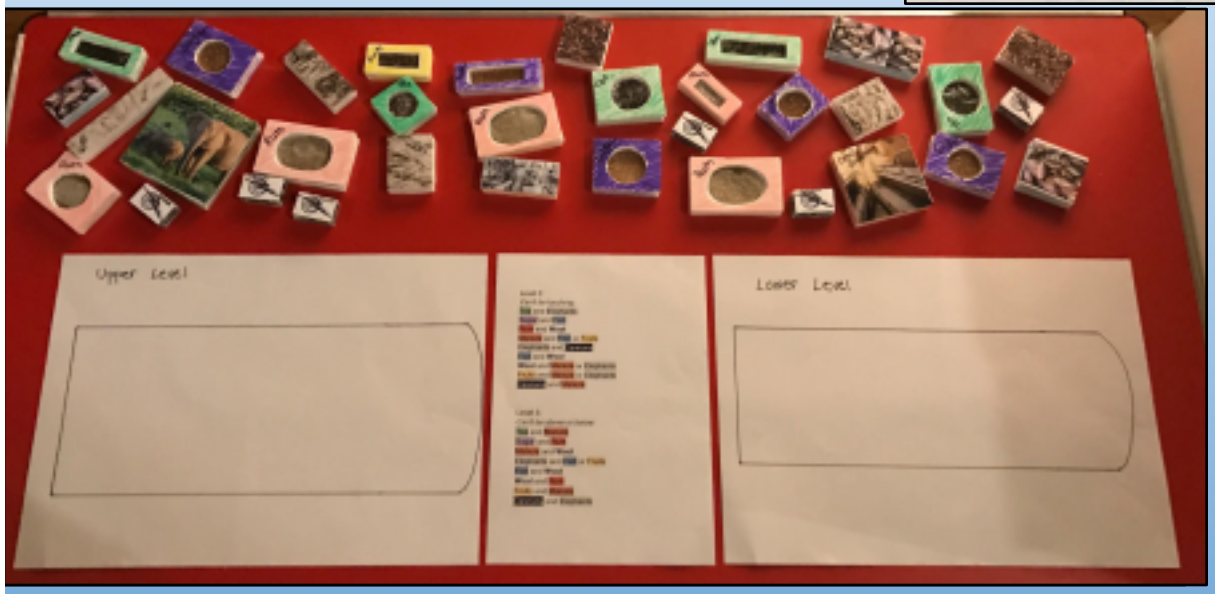
- Importance of facilitated interaction
- Benefits & pitfalls of object handling
- New concepts inspire curiosity
- Life connections spark understanding

https://www.museumoflondon.org.uk/application/files/4014/5492/8071/prehistory-picchase-no-012053.jpg

Activity Trolley

Ship Packing Puzzle

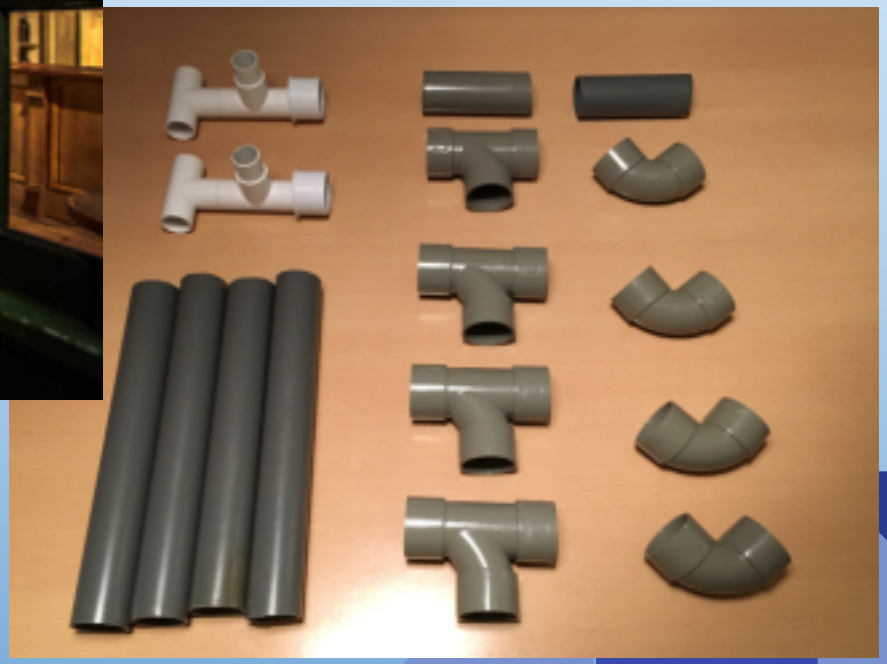





NEYMAR JR
11

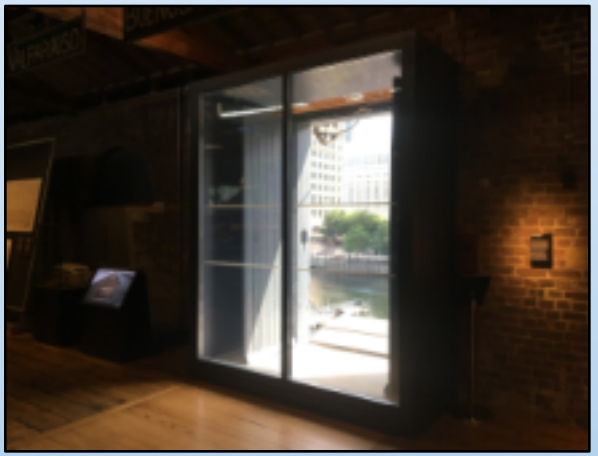
Ship Shapes Through the Ages

Stinky Sewers



Family Activities: Key Takeaways

- Trolley placement
- Scalability & Collaboration
- Language barrier
- Connection to the galleries



Teacher Resource: Purpose & Design

- Expanded upon activity list
- Stories, games, questions, and guided looking
- Teacher-led, self-directed gallery visits
- Expands MoL's capacity for school groups

Full STEAM ahead!

City and River gallery

Model of St. Katharine Docks

Story: In the docks and out on the sea, ships had to communicate between each other. Sailors spoke many different languages, and docks were noisy, busy places. It was often impossible to communicate verbally between ships.

What forms of communication have you heard of them using? (flags, flashing lights, whistles (demonstrated in the Sainsbury gallery on the second floor))

Through this part of the gallery students must find a way to communicate to each other through nonverbal means!

Activity: The goal is to have students come up with their own communication methods while completing different challenges. Allow them only 1-2 minutes to complete each task

- First, arrange in order by day of the month each person was born (1st of any month, 2nd of any month, 3rd of any month etc).
- Next, group by favourite
- Finally, gather by favourite type of music.

The first is easy due to a pre established way of communicating numbers to each other. The colors were a little difficult but could be pointed to around the shapes of music could have been

At the end of each round have each group go around and say what they thought they were in.

Was this challenge easy/difficult? Why? Explain that it can be difficult to communicate without agreeing on a method first.

Why is it important for everyone sailing to use the same communication method? For example, what might happen if different countries used different methods to communicate the same word. How could this create problems? *Hint: misunderstandings possibly causing fights or accidents*

What forms of communication do ships use now? (Satellite phones, radios, Morse code)

Museum of London Docklands 2017. This sheet is a prototype being tested for future development.

Full STEAM ahead!

First Port of Empire gallery

Blacksmith's Forge & the Great Eastern

Story: At the blacksmith's shop they would make tools and equipment for ships and dockworkers.

What sort of things would a blacksmith make for use on a ship? (parts, pulleys, swords, etc)

How does a blacksmith manipulate hard metal? Heating makes the forms less soft so it can be manipulated with various (tools) the harder the metal gets, the softer it becomes and the easier to work with.

There are many examples and interesting reactions and heating processes (different annealing, tempering, and normalizing. Each process causes the metal to take on different properties. (For the sir a) research later or outside of school (if students are interested)

Why do they need heavy hammers and tools? (metal is strong and hard to move, even while hot)

As ships got larger and more complex it became less practical for blacksmiths to make parts in the same ways. Look around the gallery for a machine that could manipulate metal even when it was cold and hard. (metal punch)

What else used steam power? Can you find something nearby? (Great Eastern)

Science fact! Metals have many different properties. *Malleability*: the ability to deform under pressure. *Ductility*: the ability to draw a metal into a wire. Look around the gallery. Can you think of any metals that are malleable? Ductile?

Museum of London Docklands 2017. This sheet is a prototype being tested for future development.

Full STEAM Ahead!

Teacher Resource: Evaluation

Observations

- Enjoyed engaging with each other
- Uniquely interpreted the resource
- Positive response to new information

Recommendations

- Align with visitor journey
- Clear directions

One final thought...

https://www.museumoflondon.org.uk/application/files/1914/6177/5632/Sugar-and-slavery.jpg

Thank you! Questions?

MUSEUM OF LONDON DOCKLANDS

WPI

Contact:
mol-17e4@wpi.edu

Project:
http://wp.me/P4ENwQ-tx