Saving exhibits from the dumpster

Refurbishing on a shoestring budget

* Brought to you by the Department of Science Content and Design, and the number $\pi$
WATCH THIS RACE!

REGARDEZ CETTE COURSE!

Le chemin le plus court est-il toujours le plus rapide?
ISAAC NEWTON...

"I'd bet on the CURVE Any Day!

Je parie que c'est la courbe!"
STRENGTH IS NOT ALWAYS THE ANSWER
Try lifting each weight the same distance
Shadow Tunnel
Leave your shadow behind!
Step inside to find out how.

Le tunnel des ombres
Laissez vos ombres!
Entrez et voyez comment.
*Sweeps: snapshots of exhibit usage*
A total of 32 sweeps were made starting on 2016/12/28 through until 2017/01/10. During this time 2392 visitors were observed in the Science Arcade in direct interaction with one of the identified 57 exhibit clusters. A total of 1470 behaviours were identified, 97% of which fell into the 6 main expected categories selected for this study.
Most attended exhibits
Honda Brakes: 10 Adults, 4 Children
Liberty and Bell: 5 Adults, 8 Children
Brachistocrome: 8 Adults, 4 Children
Air foil: 8 Adults, 4 Children
Magnetic levitation: 3 Adults, 5 Children
Standing waves: 2 Adults, 6 Children
Magnetic balancing: 5 Adults, 1 Children
Making waves: 5 Adults, 0 Children
Bending Light: 0 Adults, 0 Children
Light stick: 0 Adults, 0 Children

*Least attended exhibits*
Hot – Cold Map

- > 145 visitors
- 114-145
- 81-113
- 49-80
- 17-48
- < 17 visitors

*Hot-Cold Map*
REACTION TIME

- Reading: 15%
- Hands-on: 36%
- Bodies-on: 12%
- Talking about exhibit: 24%
- Not engaged: 12%
- Unsafe/misbehaving: 0%
- Other (see notes): 0%
STEEL DRUMS

- Reading: 0%
- Hands-on: 0%
- Bodies-on: 6%
- Talking about exhibit: 12%
- Not engaged: 15%
- Unsafe/misbehaving: 6%
- Other (see notes): 61%
WAVE EXPERIMENTS

- Reading: 25%
- Hands-on: 44%
- Bodies-on: 15%
- Talking about exhibit: 15%
- Not engaged: 0%
- Unsafe/misbehaving: 2%
- Other (see notes): 0%
LIBERTY & BELL

- Reading: 13%
- Hands-on: 40%
- Bodies-on: 13%
- Talking about exhibit: 20%
- Unsafe/misbehaving: 0%
- Other (see notes): 0%
OVERALL

Reading: 1%
Hands-on: 34%
Bodies-on: 18%
Talking about exhibit: 10%
Not engaged: 3%
Unsafe/misbehaving: 14%
Other (see notes): 1%

Word clouds produced from employee brainstorming sticky note answers to 4 questions:

**In your opinion, what is the most important part of the science arcade?**

- Interactive
- Science
- Basic
- New
- Play
- Things
- Intuitive
- Energy
- Physics
- Art
- Chemistry
- Space
- Room

**In your opinion, what is the most important thing we could add to the science arcade?**

- Updated experiences/senses
- Show science
- Copy/research everyday
- Events
- Fire
- Light
- Hands-on
- Use
- Content
- Space
- Tunnel

**Assigning a working title and tag line:**

**Action – Reaction: explore physical principles and phenomena through play.**

**What is the most important thing we could have in the hall?**

**Forget everything that it is or has been, if we imagine no limits what could we have in the hall?**

- More
- Balls
- Buttons
- Experience
- Space
- Else
- Real
What do you think are the best topics to use to add more exhibits to this room:

- Electricity & Magnetism
- Experiments & Scientific Tools
- Atoms & Particles
- Light, Sound & Waves or Levers, Pulleys & Gears
What type of activities do you think are the best activities to add to this group of exhibits?

- Playful
- Bodies-on
- High tech
- Group activity
- Quiet
What do you think are the best topics to use to add more exhibits to this room?

- ELECTRICITY & MAGNETISM
- EXPERIMENTS & SCIENTIFIC TOOLS
- ATOMS & PARTICLES
- LIGHT, SOUND & WAVES
- LEVERS, PULLEYS & GEARS
So that participants unveil for themselves the **Fun** and **Joy** in science while exploring and experimenting with the fundamental ideas of:

- Atoms and Particles
- Electricity and Magnetism
- Light, Sound and Waves
- Levers, pulleys and gears
- Experiments and scientific tools,

this hall will inspire:

the **Curiosity** to question and wonder; the **Courage** to try and play; the **Confidence** to interpret and conclude; and the **Comfort** to share and listen.
In instances where the exhibits feature large format canvases (especially those with physical barriers to reading) it’s important to optimize the typographic design to create visual hierarchy.

Clearly articulated typographic hierarchy attracts people to the exhibit from far away, and also breaks content into digestible portions when viewing from up close for people of all ages.

**Sample Typographic Breakdown**

**Visual Hierarchy**

**LEVEL 1**

**PULL**

each handle.  

*Action word* typeset in Neogram Black, upper case.

*Remaining action sentence* typeset in Neogram Bold, lower case.

**LEVEL 2**

Ready to experiment?  

Lift all the weights to the same height. How do the pulleys and rope lengths differ?  

*Tight line-spacing* used to keep sentence as cohesive graphic unit.

*Slightly looser line-spacing* used to separate text block from next sequence of hierarchy.

**LEVEL 3**

Which weight is easiest to lift? Can you see why?  

*Avoid widows/orphans* (single-word lines) whenever possible. However, width constraints combined with font size requirements might make them necessary sometimes.
PULL each handle. What weight is easiest to lift? Can you see why?

Ready to EXPERIMENT? Lift all the weights to the same height. How do the pulleys and rope weights affect?

TIREZ chaque poignée. Quel poids roule le plus facilement? Pourquoi?

L'expérience vous tente? L'experience vous tente? À quelles longueurs longueur les cordes?
STRENGTH IS NOT ALWAYS THE ANSWER
Try lifting each weight the same distance
PULL each handle. What weight is easier to lift? Can you explain?

Ready to EXPERIMENT? Lift all the weights to the same height. How do the pulleys and rope work help you?

TIREZ chaque poignée. Quel poids est le plus facile à soulever ? Pourquoi?

L'expérience vous tente ? Levez tous les poids à la même hauteur. À quelles longueurs pensez-vous les cordes ?
TEST
the levers.

How do they differ?

Ready in
EXPERIMENT?
Which tool takes the most effort? Which tool takes the least effort? Which weight moves the fastest? Which weight moves the slowest? What makes a lever the longest? What makes a lever the shortest? What point on a lever is it balanced?

ESSAYEZ
les leviers.

Quelles sont les différences?

L’EXPÉRIENCE
vos tentes?
Sait lever objet le plus d’effort? Le moins d’effort? Sait poids se déplacer le plus? Sait poids se déplacer le moins? Quelle point sur un levier est-il équilibré?
TEST
the levers.

How do they differ?

Ready to EXPERIMENT?
Which lever takes the most effort to lift?
Which lever takes the least effort to lift?
Which weight moves the farthest?
Which handle moves the farthest?
How does this relate to where each pivot point (fulcrum) is positioned?

ESSAYEZ
les leviers.

Quelles sont les différences?

L'EXPÉRIENCE vous tente?
Quel levier exige le plus d'effort?
Le moins d'effort?
Quel poids se déplace le plus?
Quel bras se déplace le plus?
Comment la position du pivot change-t-elle la situation?
Come inside and listen!

Entrez et ouvrez vos oreilles!
Listen to the sounds around you.
What do you hear?
Ready to experiment?
Explore inside. Listen. Look. Where and why is it quietest?

Écoutez tout le bruit autour.
Vous entendez?
L'expérience vous tente?
Enterz explorer. Écoutez. Regradez. Où se trouve le plus de silence?
Thank you for time and attention

Any questions?