Last Week’s Results - Types

- Most common:
  - Sit-down (duh)
  - Wild Mouse, Mine Train
  - Floorless, Inverted, Spinning

- Least common:
  - 4th Dimension
  - Bobsled
  - Stand-Up, Suspended, Flying
Last Week’s Results - Parks

- **Most common:**
  - Disney World
  - Kennywood, Hersheypark, Cedar Point

- **Not many west coast parks (e.g. SFMM, KBF, CGA)**

- **Some international parks**
  - Universal Studios Singapore
  - Everland, Lotte World
  - Canada Wonderland
WEEK 2: ORIGINS
Roller Coasters

- Just over 3000 roller coaster operating world-wide*
- Originally popular in America, they are now a global sensation
- Where did they originate?

*according to rcdb.com; accessed January 2013
Invention – Europe
Russian Mountains

- Winters in Russia are pretty terrible
- For excitement, they built artificial sledding hills
- Starting in 15th century, near St. Petersburg
Russian Mountains

- As high as 70ft; 50 degree slopes
- By 1700s, featured undulating tracks
- Ornately decorated, watered daily, favorite of aristocrats
- Wheels later added for year round riding
In the early 1800s, similar slides begin appearing in France. Can you guess why?

- Napoleon’s invasion of Russia in 1812
- With no long winters, wheels were a necessity
French Developments

- Les Montagnes Russes à Belleville; 1817; see previous slide for pictures
- Promandes Aeriennes (Aerial Walks) at Beaujon Gardens in Paris; 1817
  - Grooved track
  - Cars locked in
  - Up to 30 mph
I (begrudgingly) consider Promandes Aeriennes to be the first roller coaster

- It has a form of lift hill (albeit human powered at first)
- Undulating track with turns
- Grooved track; cars locked on
- Built for amusement / pleasure
In the early days of railroads, the idea came to make them gravity powered.

Summit Hill - Mauch Chunk Railway built in 1827 in Mauch Chunk, PA (near Allentown)

Mules pull cars to top of mountain, load cars with coal (and mules), then let them coast down winding track.
Mauch Chunk Switchback Railway

- Soon realized people would pay to ride
  - Opened to riders in 1829; $0.50 (today ~$10)
- Expanded route in 1845 to 18 miles
- Pavilions built on top of mountains for tourists
Mauch Chunk Switchback Railway

- 1872, became a purely tourist attraction
- 1874, 2\textsuperscript{nd} most popular tourist attraction in US (after Niagara Falls) with 35,000 visitors a year
- Continued operating until 1937
LaMarcus Adna Thompson

- Born in 1848 near Columbus, Ohio; carpenter and businessman
- Originally made a small fortune doing business in Chicago
- Visited Mauch Chunk in the 1870s; inspired him to try his own creation
LaMarcus Adna Thompson

- Opened the Switch Back Railway at Coney Island (NYC) in 1884; America’s first roller coaster
- 50ft tall, went 6 mph, 600ft long; cost 5 cents to ride
- Conflicting reports on functionality
  - Switchback on far end
  - Lifted to top on back tower
LaMarcus Adna Thompson

- Instant success; earning $600 a day (~$14,000)
- Within a few months, Charles Alcoke builds Serpentine Railway at Coney Island
  - Continuous circuit; side facing seats
- Philip Hinkle builds coaster in 1885 in San Francisco with forward facing seats and lift hill
- This started a wave of coaster construction
The name ‘Roller Coaster’

- In 1887, a ride was made at an ice/roller rink in Haverhill, MA.
- Figure-8 layout above rink with track made of rollers.
- Riders rode sleds down the rollers.
- While not significant itself, gave the name ‘roller coaster’.
‘Roller Coaster’ in other languages

- **Romance languages:** Russian Mountains
  - Spanish: *Montaña rusa*
- **Russian:** Американские горки (American Mountains)
- **German:** Achterbahn (Figure-8 Train)
- **Scandinavia:** Mountain and Valley Train
  - Swedish: *Berg- och dalbana*
- **Chinese:** Guo Shan Che (Mountain-Passing Vehicle) or Yun Xiao Fei Che (Cloud Flying Vehicle)
- **Arabic:** ‘Vipery’ (pertaining to vipers)
- **Croatian:** Train of death (o_O)
Coney Island and Amusement Parks
Coney Island, where the first roller coasters were built, would become a major center of the amusement industry in the early 20th century.
Coney Island

- A colorful back story to Coney; full of corruption by a politician named John McKane
  - His arrest in 1893 opened Coney for free enterprise
- In 1895, Paul Boyton opened Sea Lion Park; can be considered first amusement park
  - Featured a Shoot-the-Chutes ride, shows, and a Flip Flap coaster
Coney Island

- 1897, George C. Tilyou opens Steeplechase Park at Coney Island
  - Inspired by Sea Lion Park and fairs
- Featured a Steeplechase ride as well as many other ‘odd’ rides
- Burned completely to the ground in 1907
- A major part of Coney until it’s closing in 1964
Coney Island – Steeplechase Park
Coney Island

- 1903, Luna Park opens on site of Sea Lion Park
  - Features 500,000 light bulbs
  - Earned 4 million visitors a year
Amusement Parks Spread

- Fredrick Ingersoll made successful Luna Park clones (similar to the Coney Island one) around the US
- Brought amusement park idea to new areas, esp. midwest
- Built some internationally (Germany, Australia, etc.)
- Considered first amusement park chain
Trolley Parks

- Trolley companies at the turn of the century were looking to boost riders on weekends and during summer
  - The solution? Build amusement parks at the end of the line
- Some amusement parks began this way, including Kennywood
- Most Trolley Parks died out within a decade
Early Coaster Developments
After his success at Coney, LA Thompson built the Scenic Railway in Atlantic City, NJ.

- A sort of dark ride / roller coaster hybrid

- Very popular, formed a company to produce the ride worldwide

- Most famous one in Venice, CA (built in 1910)
Side friction coasters

- Ingersoll popularized the side friction coaster
- Cars ride in troughs with rails on the side
- Most commonly in figure-8 patterns
- Extremely popular during the first decade of 1900s
Side friction coasters
Side friction coasters
John Miller

- Born in 1872 to German immigrants
- At age 19, became LA Thompson’s Chief Engineer
- Patented over 100 roller coaster improvements; most concerning safety
  - Anti roll back
  - Lap bar
  - Brake improvements
In 1919 (or earlier), Miller invented the under-friction wheel, or up-stop wheel

- Led to wheel structure on right
- This allowed Miller to build more exciting coasters than competitors
- Increased the intensity of coasters leading into the 1920s
John Miller - Kennywood coasters

- **Jack Rabbit (1920)**
  - 40ft tall, 70ft drop, 45 mph, 2132ft long
  - Double drop into valley
- **Racer (1927)**
  - Möbius track
Thunderbolt (1924, 1968)
- Originally Pippin, with drops into valley
- Upper portion added in 1968
Can you guess when the first looping coaster was made?
- 1846!

An English company made a few; the one below was in France

43ft high, 13ft diameter loop
Side Topic – Early Loops

- Sea Lion Park had the Flip-Flap Railway
  - It sometimes gave riders whiplash
- A similar ride called the Loop-the-Loop opened in 1901, but patrons were too afraid to ride
Summary

- Russian Mountains in 15th – 19th centuries
  - Ice slides; evolved to be more complex
- Idea came to France after Napoleonic Wars
  - French added wheels and grooved track
  - Made the first true roller coaster (in my opinion)
- Mauch Chunk Switchback Railway, a repurposed mining railway, was the first American gravity attraction
- LaMarcus Adna Thompson built first American roller coaster, the Switchback Railway, in 1884
Coney Island was a hot bed for amusement park and roller coaster development

- Sea Lion Park, the first amusement park, opened in 1895
- Steeplechase Park was a major success with exotic rides
- Luna Park featured thousands of lights and was copied across the world

- LA Thompson’s Scenic Railways merged roller coaster and dark ride

- Trolley companies built amusement parks at the end of their lines at the turn of the century to boost ridership on weekends (called Trolley Parks)
Summary

- During the first decade of the 1900s, side friction roller coasters were very popular.
- John Miller was the most prolific early designer, creating numerous improvements for roller coasters:
  - His up stop wheels allowed for more extreme rides.
- 3 of his coasters remain at Kennywood.
Next Week

- The First Golden Age of roller coasters
- The decline of coasters and amusement parks during and after the Depression / WWII; and their revitalization
- Disneyland and its impact
- The development of the steel roller coaster
  - And successful inversions
Sources

- Most info from Bennett’s *Roller Coaster: Wooden and Steel Coasters, Twisters and Corkscrews* and Rutherford’s *The American Roller Coaster*
- Other various online sources including ultimaterollercoaster.com and Wikipedia (a good resource when used correctly)
Photo Credits

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  - The Beast @ Kings Island; photo by Jordan Zink, 2007

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  - http://upload.wikimedia.org/wikipedia/commons/f/fc/Promenades_Aeriennes_Jardin_Baujon.jpg
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  - Scan from Bennett’s Roller Coaster: Wooden and Steel Coasters, Twisters and Corkscrews; scan by Jordan Zink

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  - Scan from Rutherford’s The American Roller Coaster; scan by Jordan Zink

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  - From Google Maps; taken by Jordan Zink; 2013

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  - http://www.westland.net/coneyisland/articles/sealionpark.htm

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  - http://www.westland.net/coneyisland/articles/sealionpark.htm