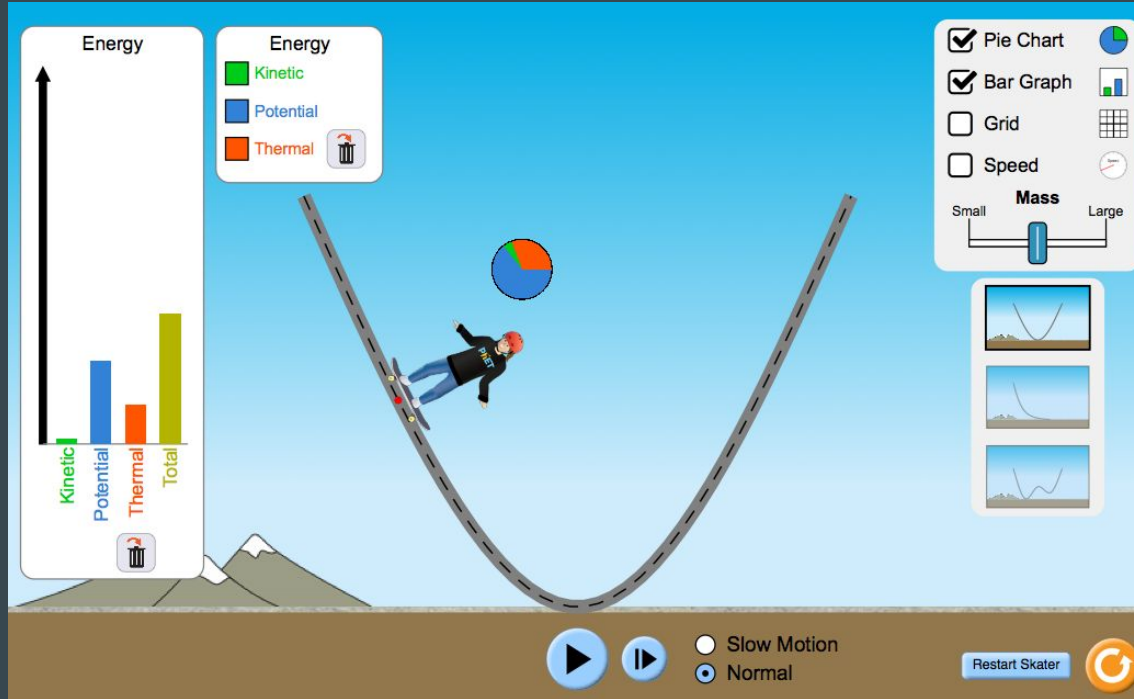


Energy Skate Park



Designs in Progress

Energy Skate Park



[Link: Energy Skate Park Basics](#)

Some Design Challenges

- Keyboard control of free-form movement and placement
- Enabling track construction for non-visual users
- Skater position and movement for non-visual
- Energy conservation and conversion
 - energy conservation
 - potential / kinetic energy conversion
 - Friction, thermal energy, and its effect on available potential / kinetic energy

Some Design Challenges

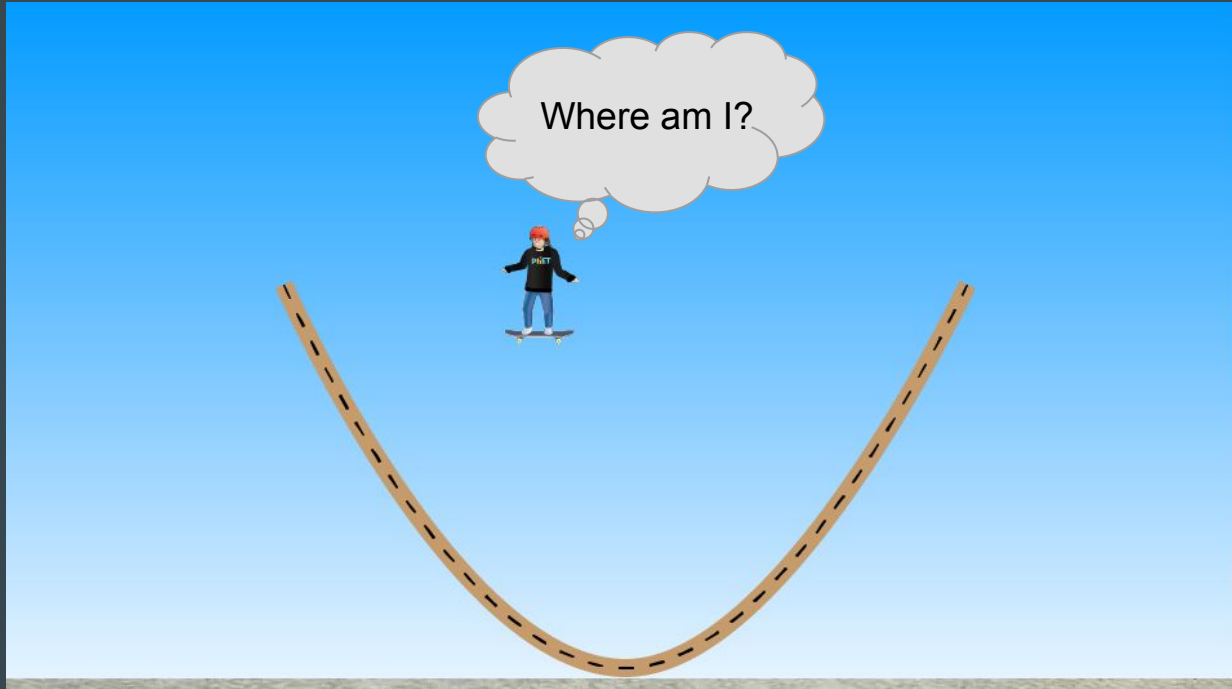
- Keyboard control of free-form movement and placement
- Enabling track construction for non-visual users
- Skater position and movement for non-visual
- Energy conservation and conversion
 - energy conservation
 - potential / kinetic energy conversion
 - Friction, thermal energy, and its effect on available potential / kinetic energy



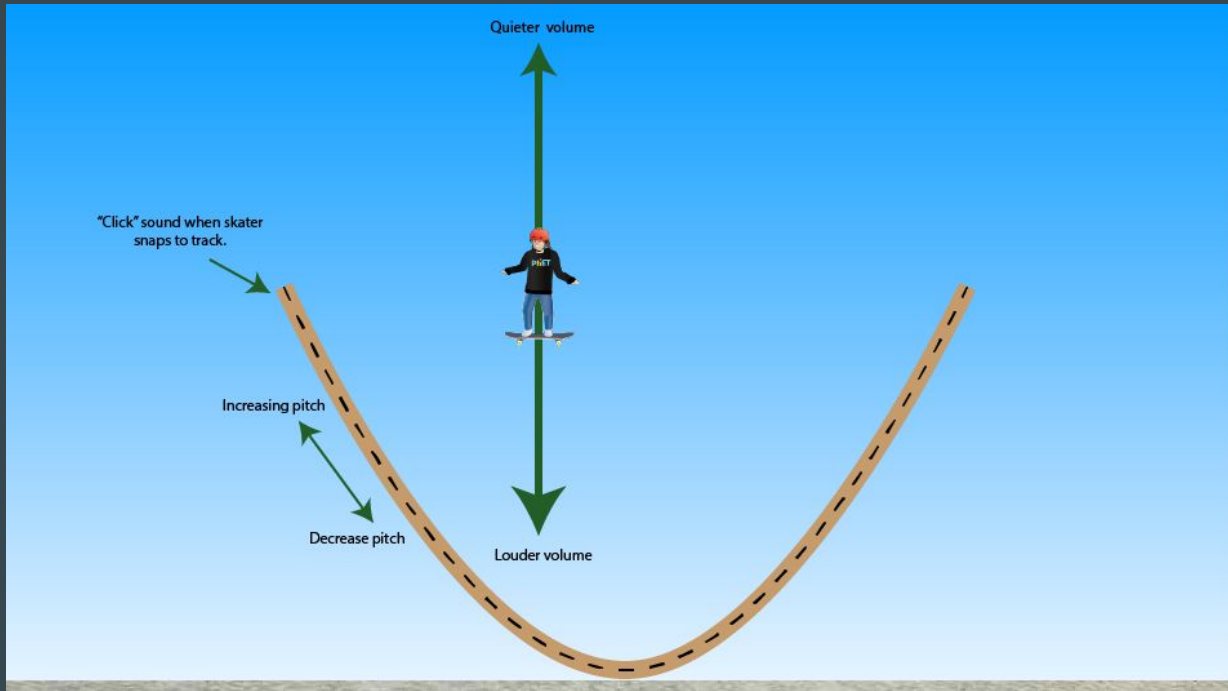
Sonification, text descriptions, haptic

Skater Position and Movement

Skater Position



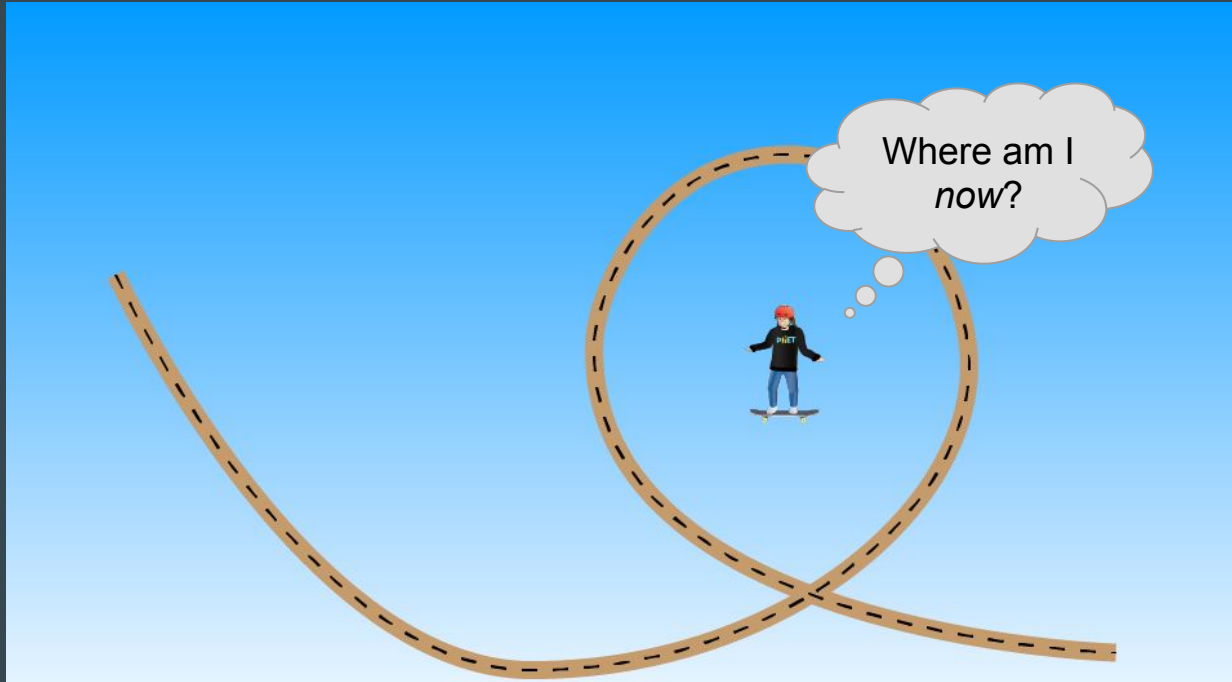
Skater Position: Painting with Sound



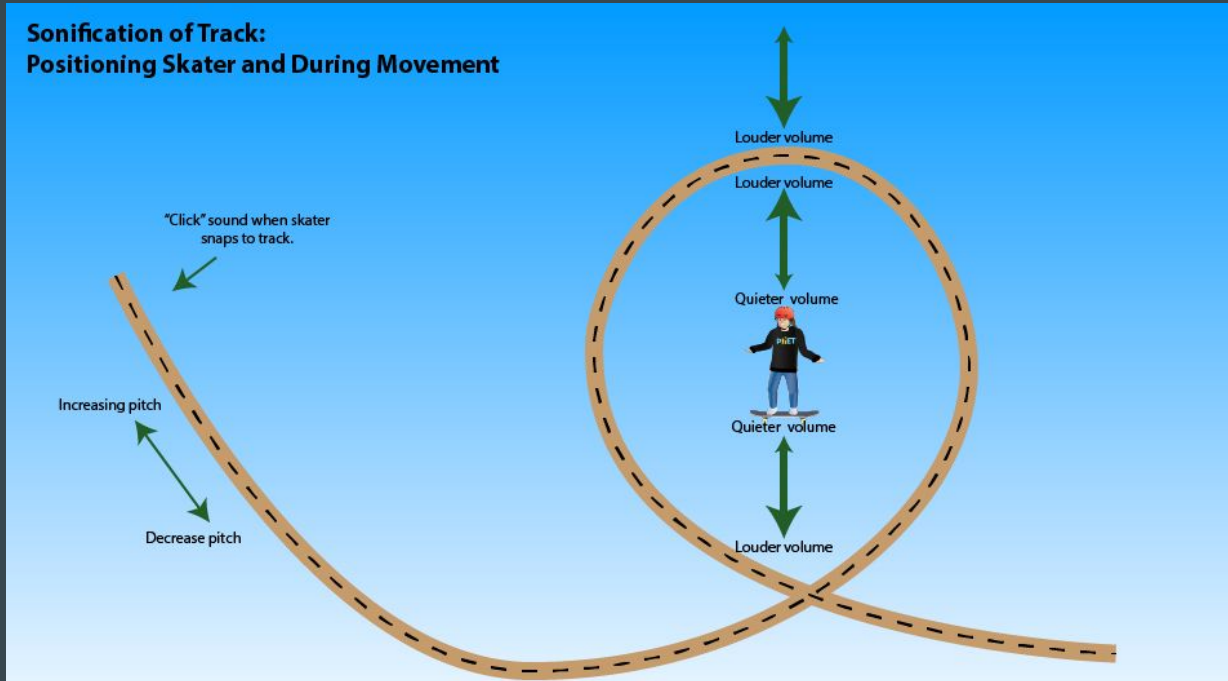
Pitch to convey track shape.

Volume to convey distance of skater to track.

Skater Position: More complex shapes



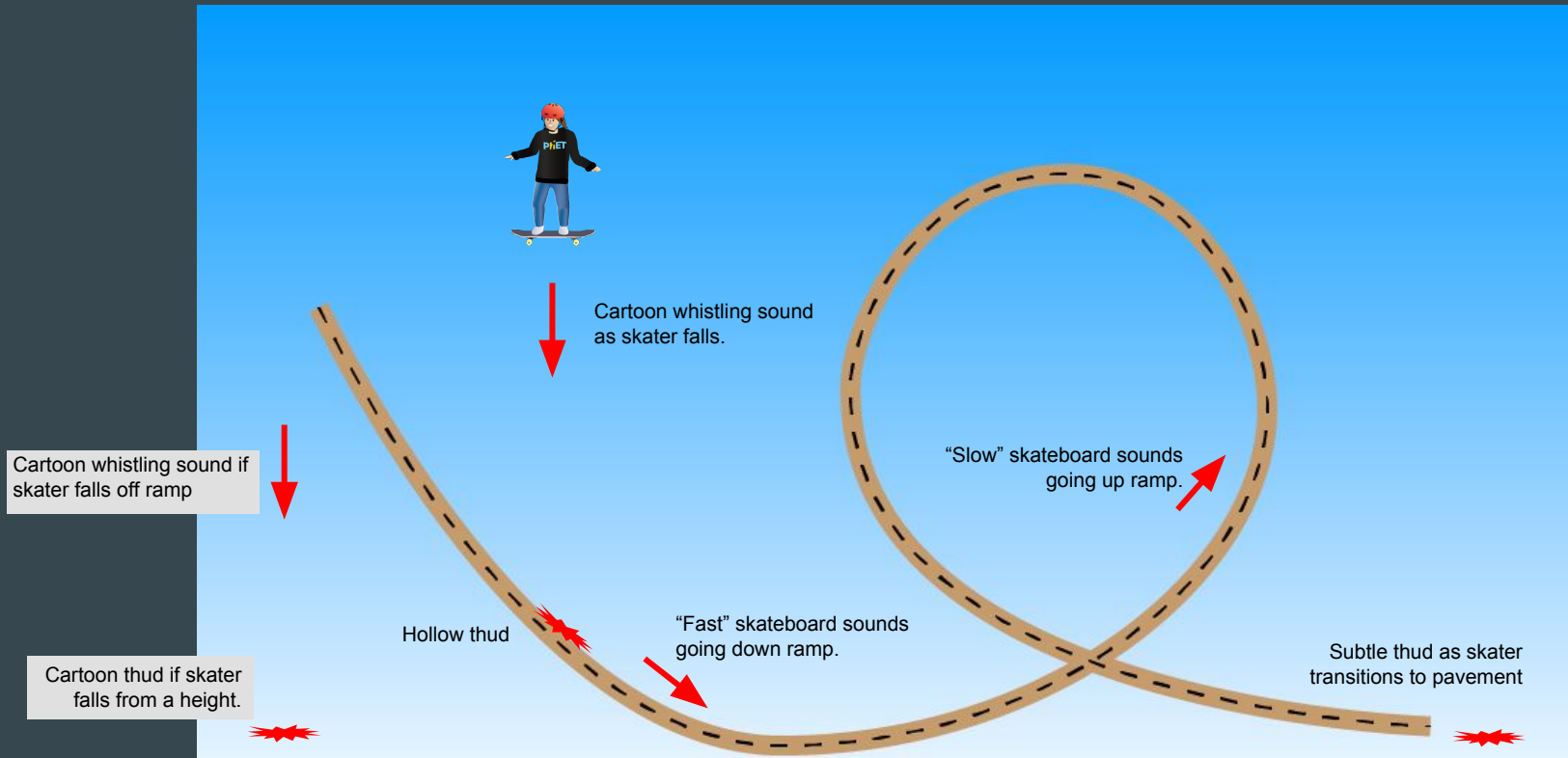
Skater Position: Painting with Sound



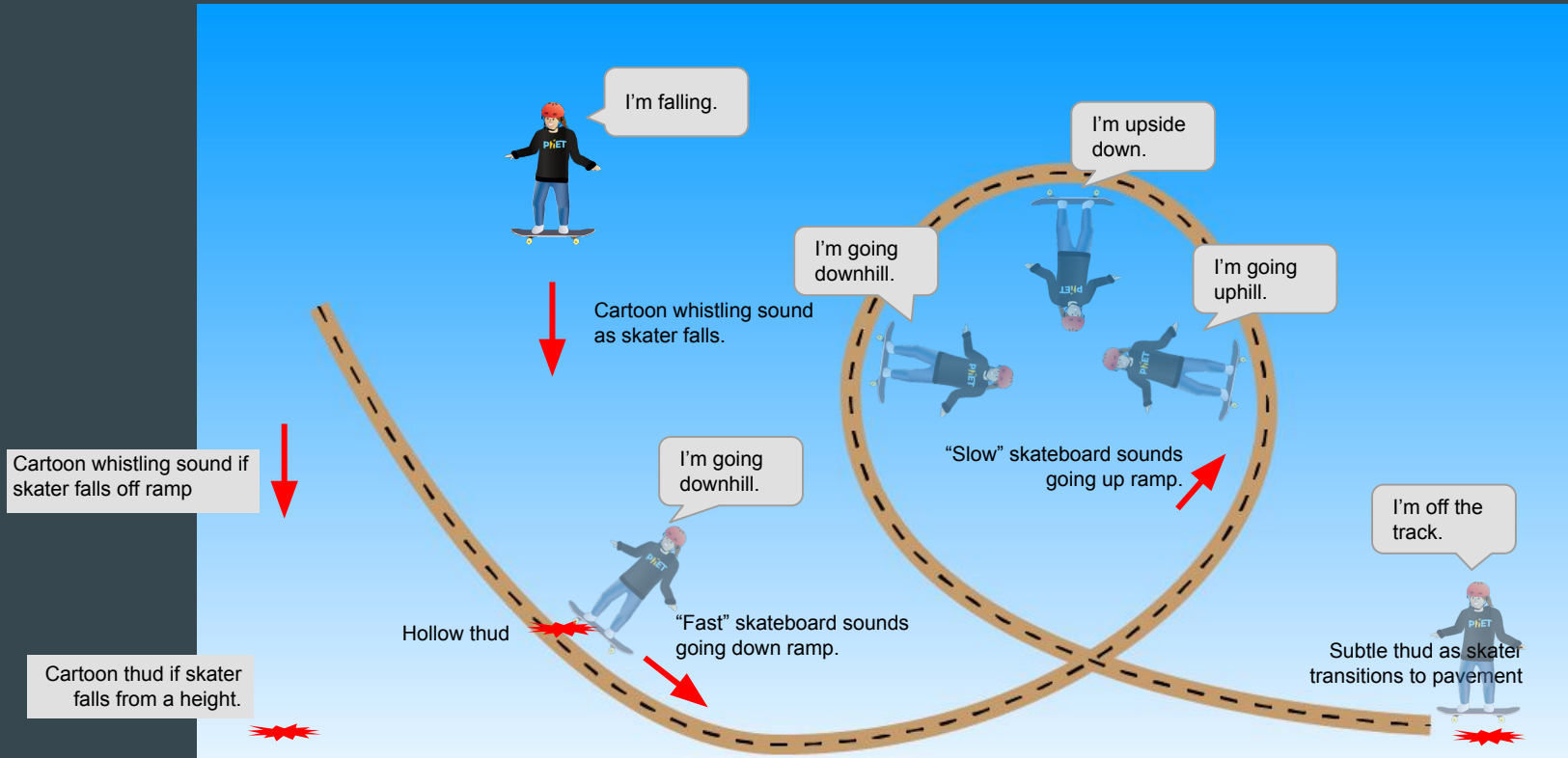
Pitch to convey track shape.

Volume to convey distance of skater to track.

Skater Movement



Skater movement: Augment with Skater Narration

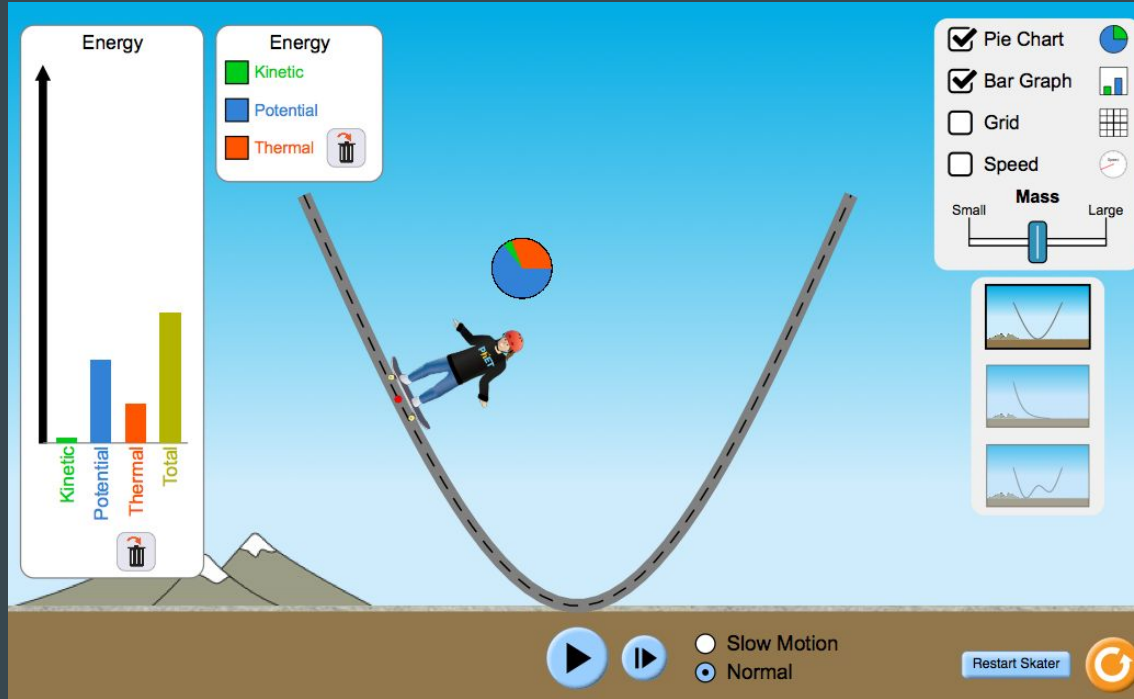


Sonification as Way Finding

- Facilitating way finding by treating the skater like the user's avatar
- Describe and sonify location and events relative to the skater so the user knows where they are and what is happening.

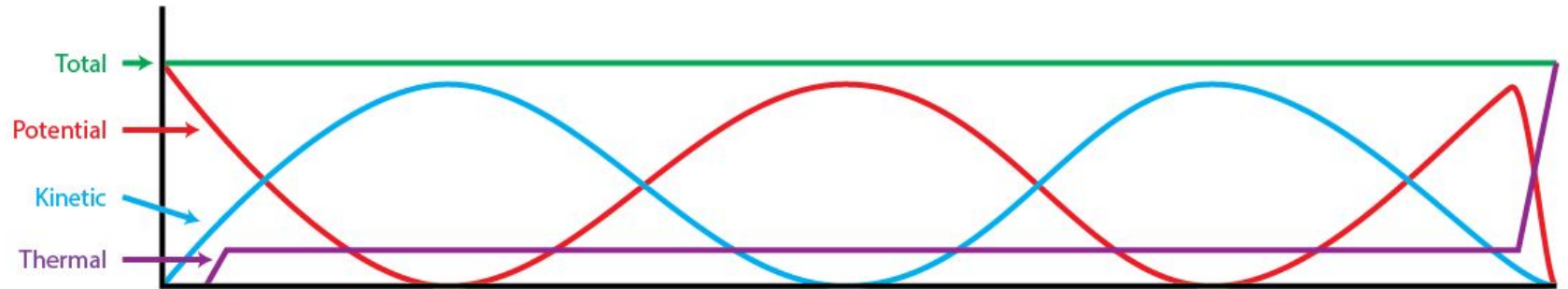
Energy Conservation and Conversion

Sonifying the Conservation of Energy



Sonified Energy Conservation Example

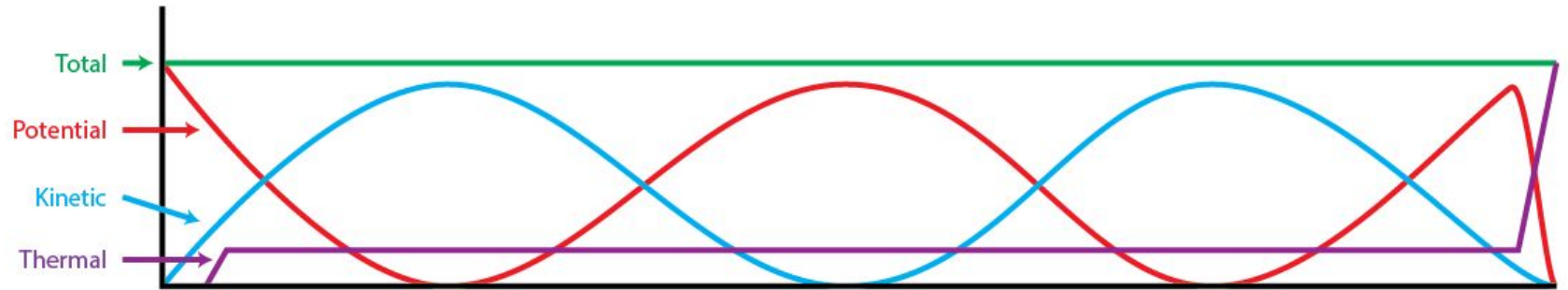
Energy Skate Park Energy Conservation Chart
Introduction Scene, U-shaped Track



Link: [Example rendition \(MP3\)](#)

Sonified Energy Conservation with Skater Narration

Energy Skate Park Energy Conservation Chart
Introduction Scene, U--shaped Track



"I'm falling."

"I'm going downhill."

"At the bottom."

"I'm going uphill."

"At the top and reversed directions."

"I'm going downhill."

"At the bottom."

"I'm going uphill."

"I'm off the track."

Layered Use of Sonification

Layers of Sonification

- Navigation and orientation: way-finding, skater as an avatar
- Event feedback: sonification and narration of skater movement
- Energy conservation: enable understanding of energy relationships
- Give user control of what they want to hear and focus on: ability to mute certain sounds.

Further Research and Design Required

- Skater movement may be too quick for narration. How would you handle this case?
- How would sonification help with track construction? Could we use a similar skater approach to track construction? (i.e. treat the track part being moved as the avatar).
- Skater movement sonification - use more “real-world” sounds.
- Energy chart sonification - what sounds should be used?