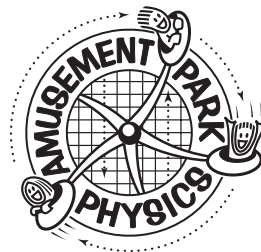




Playland Amusement Park
Amusement Park Physics
Physics Day, Science Day and Science of Fun



Ride Specifications

The following data is provided to help teachers create an answer key for the student activity sheets on Physics Day, Science Day and the Science of Fun. All measurements are the best values available from ride operations. Speeds will vary day to day due to many factors, such as temperature, humidity, etc.

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Atmosfear

Height of the ride: **70 m**
Rate of revolution: **10 rev/min**
Length of Chain: **9 m** (from top of ride to seat)
Avg. speed: **70 km/hr**
Avg. centripetal force: **1.7 g's**

The Beast

Ride Height: **40 m**
Side to Side Swing: **47 m**
Gondola Rotation: **360 degrees**

Break Dance

Length primary radius: **4.27 m**
(distance from ride center to pivot)
Length of secondary radius: **2.14 m**
(distance from pivot to cart)
Avg. speed of rotation of primary axis: **11 rpm**
Avg. speed of rotation of secondary axis: **20 rpm**

Coaster

Length of track: **1001 m**
Height of first hill: **21.2 m (70 ft)**
Time of ride: **1:30 – 2:00 minutes**
Speed at the bottom of first hill: **16 m/s or 58 km/h**
Length of train: **8.7 m**

Crazy Beach Party

Length of pendulum arm: **10.82 m**
(distance from pivot to car)
Radius of seat rotation: **3.27 m**
(distance from center of car to seats)

Enterprise

Radius of ride: **7.62 m**
(distance from ride center to cars)
Avg. speed of rotation: **13 rpm**

Flume

Length of ride: **1200 m**
Time of ride: **201 s**
Height of highest hill: **12.19 m**

Gladiator

Length primary radius: **4.53 m**
(distance from ride center to pivot)
Length of secondary radius: **1.96 m**
(distance from pivot to cart)
Avg. speed of rotation of primary axis: **8 rpm**
Avg. speed of rotation of secondary axis: **22 rpm**

Hellevator

Height of tower: **60.6 m**
Height of riders at top of flight: **50 – 54.8 m**
Mass of cart: **910 kg**
Pneumatic pressure to fire cart and riders upward:
62 – 92 psi
Accelerometer reading on initial thrust: **2.5 – 3 g**

Hell's Gate

Radius of primary rotation: **5.486 m**
Radius of secondary rotation: **1.88 m**
Avg. rate of rotation: **27 rpm** (for secondary rotation)

Music Express

Avg. rate of rotation: **13 rpm**
Radius of ride: **6.68 m** (distance from center to cars)

Pirate Ship

Length of arm to ship: **13.57 m** (distance from pivot point to bottom of ship)

Revelation

Length of arm: **51.5 m**
Avg. speed of rotation: **10 rpm**

Rock-N-Cars

Voltage to scooter: **96 Volts**

Scrambler

Length primary radius: **4.5 m**
(distance from ride center to pivot)
Length of secondary radius: **3.34 m**
(distance from pivot to cart)
Avg. speed of rotation of primary axis: **11 rpm**
Avg. speed of rotation of secondary axis: **6 rpm**