just for fun

CANOBIE LAKE PARK

Interactive Classroom

Starblaster

THE INTERACTIVE CLASSROOM

PROJECT: INTERACTIVE

SITE: SALEM, NH

EDU_PROG:25749/BLACKBERRY CODE # 549K28J32

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Fun Facts

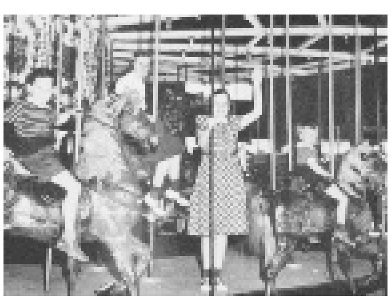
Yankee Cannonball Roller Coaster

Canobie Lake Park's classic wooden coaster was built by the Philadelphia Toboggan Company in 1930 for Lakeview Park in Waterbury, Connecticut. The coaster was purchased in 1936 by the owner of Canobie Lake Park and installed here as the "Greyhound." The 60 foot tall first hill was destroyed by a hurricane in 1954. In the mid-70's, the coaster was renamed the "Yankee Cannonball".

The Yankee Cannonball is known as an "out and back" coaster because of its large "L" shaped layout. The three-car train travels over a track length of 1,840 feet at a maximum speed of 35 miles per hour. The first and highest drop is 53 feet. With a ride time of 52 seconds from the top of the hill to the brakes and 1 min 52 seconds from station to station it has been rated as one of the top ten wooden coasters in the country!

The Antique Carousel

Built in the late 1800's, the Antique Carousel is the oldest attraction at the Park. The carousel was moved to Canobie Lake Park in 1906. At some point during the carousel's history, a third row of horses was added making it one of the few carousels operating with an outer step. Originally, the carousel was steam-powered but today is one of only two carousels driven by a rubber tire and an electric motor. Out of the fourteen carousels permanently installed in New England, ours is one of the oldest.



The carousel's music is supplied by a 1917 Wurlitzer Military Band Organ. This organ replaced the original steam-powered organ sometime in the 1920's or 1930's. Over 80 piano rolls similar to those found on the old style player pianos provide music. Some of the music rolls being played today date back to 1902.

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The Canobie Corkscrew Roller Coaster

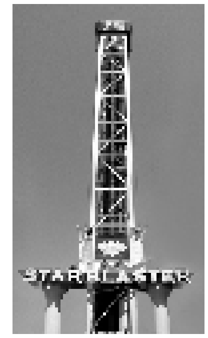
Canobie Lake Park's only movie star! Built in 1975 for "Old Chicago", an indoor amusement park in Chicago, Illinois, by Arrow Dynamics of Utah, the Canobie Corkscrew Coaster starred in the movie "The Fury". Purchased by Canobie Lake Park in 1988 from the Alabama State Fair, the Corkscrew sat in pieces for two years awaiting town approval for construction.

Thanks to the Corkscrew; flagpoles, church steeples, and amusement rides can now be 80 feet tall within the town of Salem! The Corkscrew opened completely refurbished in 1990 with a lift height of 73 feet and a first drop of 65 feet. The six-car train carries 24 people to a maximum speed of 32 miles per hour and through two 360 degree loops. It was only the second coaster in the world to turn upside down twice. The Corkscrew at Knott's Berry Farm in Buena Park, CA was the first corkscrew roller coaster.

The Boston Tea Party Shoot the Chute

The area between the Old Canobie Skating Rink and Canobie's Famous Dancehall Theater is entirely themed to revolutionary war Boston. The centerpiece for this section is the "Boston Tea Party Shoot the Chute". This is a water ride that makes quite a splash! Known in the industry as a "Splash Down", each of the boats (weighing 4 tons each!) travels up a chain lift and then plunges through a cleat tunnel into a pond 48 feet below. The result is a wave almost 40 feet in height! For an added thrill, the exit for the ride goes over a bridge that is directly in the path of the gigantic splash.

The Starblaster



In 2002, the Starblaster, built by S&S Power, was installed between the Antique Cars and the Yankee Cannonball. The Starblaster is known as a "double shot" ride, shooting 12 riders from bottom to top TWICE with compressed air! It is closely related to a "drop tower" ride where you are elevated to the top first and then released.

In welcoming the new Starblaster, a green YAG laser was installed on the very top. This beam, manufactured in Washington, emits a laser beam up to 15 miles in 8 different directions and operates every night that the Park is open beginning at sundown.

daVinci's Dream

daVinci's dream is truly a work of art. Wood Design, Inc of Holland installed this "waveswinger" in 2003. Every panel of this magnificent ride was handcrafted and hand-painted in an Italian Baroque and Renaissance fashion in the Netherlands. As you sit in your seat, you are elevated 16 feet in the air while the cap tilts 15 degrees and begins to spin in the opposite direction of the mid-section causing a true "wave swing" feel.

The ornate fencing around the perimeter houses the statues of Canobie Lake Park's three women, the Goddesses of Spring, Summer, and Fall.

Park Map


MAP KEY
RESTROOMS
TELEPHONE
LOCKERS
CABANA RENTALS
FIRST AID
AIR CONDITIONED
AUTOMATED EXTERNAL DEFIBRILLATOR
DESIGNATED SMOKING AREA
FOOD
GIFTS
FREE PARKING
STROLLER RENTAL
WHEELCHAIR RENTAL
CELL PHONE CHARGING STATION
CASTAWAY ISLAND
MAIN ENTRANCE
UNTAMED
CORKSCREW
DRAGON COASTER
YANKEE CANNONBALL
LOG FLUME
GIANT SKY WHEEL
CAROUSEL
DODGEM

Formulas and Conversions

Formulas

Circumference of a circle	$C = 2\pi r$ or πd
Force	F = mass x acceleration
Work	W = force x distance
Gravitational Potential Energy	GPE = weight x height
Kinetic Energy	$KE = \frac{\text{mass} \times \text{velocity}^2}{2}$
Speed	Speed = distance / time

Conversions

Meters per second / .28 = Kilometers per hour

Kilometers per hour x .62 = Miles per hour

Newtons = weight in pounds x 4.45

Energized

Overview
Energy is contained in everything. The Law of Conservation of Energy states that the total amount of energy in a system remains constant, although energy transforms from one form to another. There are three forms of energy that are used in an amusement park:

Potential Energy is stored energy or energy of position. With potential energy, the energy stored is determined by the position of the object.

Kinetic Energy is energy of motion.

Mechanical Energy is energy produced by fuel powered machines to complete a task.

The Pirate Ship ride, like most rides at Canobie Lake Park, combines all three forms of energy. Mechanical Energy is used to start the swinging motion. The Mechanical Energy is transformed into Kinetic Energy as the ship starts to swing. At the top of each swing the kinetic energy is transformed into potential energy, which is transformed back into kinetic energy as the ship begins the return swing. During the forward motion, potential energy is transformed into kinetic energy and reaches maximum at the bottom.

Goals
Observing
Systems and Interactions

Materials
Paper
Pencil

Directions/Activity
1. Find 3 other rides that use energy transfers and compare them. Record the results on the worksheet.
2. What effect does the energy transfer have on the sensation of the ride?

3. When do you feel the greatest effects?

4. Make a diagram of one of the rides and label the energy transfers.

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Energized Worksheet

Ride	Maximum Potential Energy	Maximum Kinetic Energy	Use of Mechanical Energy

Loop the Loop

Overview
Loops are visible in just about every ride at Canobie Lake Park. Some are vertical loops as seen in the Corkscrew Coaster, some are horizontal loops similar to those found in the spirals of the Rockin Rider, and still others are combinations of both. A loop is defined as any roughly circular or oval pattern or path that closes or nearly closes in on itself. Amusement rides use loops to create a thrill. The rides also use two basic physics principles – Inertia and Centripetal Force.

> *Inertia* is the physical property that keeps moving objects moving or motionless things still unless acted upon by an outside force.
>
> *Centripetal Force* is the force that causes objects to turn in circular paths.

When going through a turn or a loop these two forces act together to create the sensations that you feel. As centripetal force pulls the car into a corner, Inertia pushes you into the side of the car. The use of these three factors allow amusement rides to spin, flip, twist, and turn riders while keeping them safely in their seats.

Goals

Observing
Patterns
Systems and Interactions

Materials

Paper
Pencil

Directions/Activity
1. Select one of the following rides: the Yankee Cannonball, the Canobie Corkscrew, or UNTAMED.
2. Observe the ride.
3. Predict where you will feel: a) Weightless b) Heaviest
4. Ride the ride.
5. Were your predictions correct?

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Questions

1. What two forces work together to keep you and the cars on the track?

2. What force keeps you in your seat?

3. When did you feel weightless?

4. When did you feel heaviest?

5. Where does centripetal force occur?

6. Identify at least one place where you see a transfer of energy. Diagram the types of energies and where the transfer occurs.

Enrichment

1. Diagram the path of the ride and label where you see energy transfers, centripetal force, and where you feel weightless.

2. How does friction affect the ride?

3. Find a ride in the Park that combines both vertical and horizontal loops. Explain how both loops can exist on the same ride.

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Spinning Out of Control

Overview
What makes a unique ride? Since most rides involve spinning and twisting in circles, why does one ride create a different experience than another? The diameter of the circle, the number of circles, and the speed of the ride all effect the final ride experience.

Goals
- Observing
- Classifying
- Patterns
- Mathematical Structure

Materials
- Paper
- Pencil

DATA TABLE

Rides			
Number of Circles			
Use of Centripetal Force			
Speed			

Directions/Activity
1. Select three of these rides: the Psychodome, Zero Gravity, Crazy Cups, or the Tilt-A-Whirl.
2. Compare and contrast the rides by filling in the data table.
3. Fill in the names of the rides.
4. Count how many circles are involved in the ride.
5. Identify where centripetal force (if any) is used and how.
6. Using the numbers 1 - 3 and with 1 being the fastest circle, rate the three rides from fastest to slowest.

Questions:
1. Diagram the path you take on the ride.

2. What would happen if the car you were riding in came loose? Diagram the path it would take.

3. Does the location where you sit in the rides have an effect on your ride? Explain for each ride.

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How Far Is That Again?

Overview
A circle is defined as a cycle or a complete or recurring series usually ending as it began. Although Canobie Lake Park has many small and winding paths, there is one main path that circles the entire park and connects all the smaller paths. You can find the lengths of these paths just by walking.

Goals

Computing
Patterns
Problem Solving

Materials

Paper
Pencil
Map of Canobie Lake Park

Directions/Activity

1. Find the starting point located alongside the Giant Sky Wheel.
2. Using a natural stride, pace off ten meters three times. Total the number of steps.
3. Find the average of the three times, (total number of steps divided by three). This is your pace.
4. Use your "pace" to measure distances and complete this formula:

$$\frac{\text{your pace}}{\text{10 Meters}} = \frac{\text{number of steps}}{\text{number of meters}}$$

5. Start at the starting point at the ride sign of the Carousel by the Park Entrance and walk to the Yankee Cannonball Roller Coaster. Keep track of your paces.
6. Calculate the distance from the Carousel to the Yankee Cannonball in meters. This is an estimated figure.

Enrichment

1. Using a map of Canobie Lake Park, find a "circle" to measure.

2. Have a friend measure the same circle. How do the two measurements compare? Take an average of the two measurements. Is this a better estimate?

3. How could you get an exact measurement of the circle.

Inanimate Animation

Overview
Personification means to instill inanimate objects with human qualities. This allows a person to observe objects from a different point of view. Personifying the rides at Canobie Lake Park is a different way to see an amusement park and its activities.

Goals

Observing
Writing
Creative Thinking

Materials

Paper
Pencil

Directions/Activity

1. Select a ride that travels in a circle or makes a loop.
2. Observe the ride. Ride the ride if you can.
3. Pretend that you are the ride and take on its characteristics.
4. Observe what goes on around and during the ride. Note the noises of the people and the actions that are occurring.
5. Write a story about "A Day In My Life as a Ride."
6. Look for patterns in the way passengers on the ride react and how the ride operates.
7. Be sure to talk in the first person (I, we, etc.).

Enrichment

1. Draw a picture of your ride. Give it some "personality".
2. Select a ride you think is most like you. Explain the traits you share.

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May I Help You?

Overview

Whether working directly with our guests or behind the scenes, the employees play an important part in making every guest's visit to Canobie Lake Park memorable. The staff is offered the best in training, communication, and support. Spend some time "observing" the staff in action. This could be you someday!

Goals

Observing
Writing
Patterns
Employability Attributes

Materials

Paper
Pencil
Employee Interview Questions (optional)

Directions/Activity

1. Observe an employee performing his or her duties.

2. Make a list of skills the employee needs to do the task successfully.

3. What skills taught in school would assist this employee?

4. Does the employee repeat any tasks? Do you see a pattern?

5. Write a job description for this particular job. Include your observations.

Enrichment

1. Compare and contrast these tasks with other jobs performed at Canobie Lake Park.

2. Compare and contrast these tasks and responsibilities with a family member's job.

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Round and Round We Go!

Overview
The definition of a circle is a closed, curved line forming a perfectly round, flat figure. Every point on this line is the same distance from a point inside called the center. There are many different definitions of the word “circle”. “Circle” Canobie Lake Park and identify these various definitions.

Goals

Reading
Observing
Patterns
Critical Thinking
Creative Thinking

Materials

Paper
Pencil

Directions/Activities

Webster’s Dictionary has six definitions of the word *circle*. As you travel around Canobie Lake Park, try to find at least one example of each definition. You don’t have to limit yourself to the rides.

Noun
A closed, curved unit forming a perfectly round, flat figure.
Anything round like a circle or ring (a circle of children playing a game).
Any series that ends the way it began or is repeated over and over; cycle.
A group of people joined together by the same interests.

Verb
To form a circle around.
To move around, as in a circle.

1. Make a list of examples that fit the different definitions.

2. Explain your examples if they are not clear.

3. Identify the area of the Park where the examples are found.

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Your Point of Reference

Overview
The angle from which you see something is your point of reference. The shapes and forms you see change as your point of reference changes.

Goals

Observing
Production

Materials

Notebook Paper
Sketch Paper
Pencil

Directions/Activity

1. While riding the Giant Sky Wheel, make three different sketches from your different points of reference: one from the top of the wheel, one from the middle area, and one from the bottom side.

2. Identify all of the geometric shapes you can find on the Giant Sky Wheel. Describe how these shapes change as your point of reference changes.

3. Look at the colors on objects as your point of reference changes. Do the colors change in intensity as your position changes? If so, describe the changes.

How High?

Overview

Many amusement park rides soar to great heights. The effect on the rider could be devastating, especially for those with a fear of heights. But just how high is high?

Goals

Observing	Computing	Number	Mathematical Procedures
Measuring	Writing	Problem Solving	Expanding Existing Knowledge

Materials

Paper
Pencil
Preset/Pre measured Poles throughout the Park

Directions/Activity

1. From the line around the pole, observe the highest point on the pole at which the rides (listed on the data table) line up.

2. Record the given distance from the ride.

3. Using the concept of similar triangles, determine the approximate height of the rides.

4. Record the height on the data table.

5. Describe your thoughts before you ride, observing the ride from the ground.

6. As you ride the ride, what effect does your distance from the ground have on you?

7. How might the altitude contribute to the thrill or amusement of the ride? Explain.

DATA TABLE

	Corkscrew	Giant Sky Wheel	Yankee Cannonball	Log Flume	Pirata	
Distance from ride (given)						
Height on pole						
Distance from pole						
Height of ride (highest point)						

Speed Demons

Overview

Climbing, climbing, climbing. It can seem to take forever to get to the top of an amusement park ride. Then, just as you reach the top and begin to settle back, the rush of wind intensifies to a crushing force. Just how fast are you going anyway?

Goals

Observing	Mathematical Reasoning
Measuring	Mathematical Procedures
Writing	Measurement
Data	Expanding Existing Knowledge
Independent Learning	

Materials

Stopwatch or Watch with Second Hand
Chart of Distances or Scaled Diagram

Directions/Activity

You can do this from a distance, or if you want a challenge, try it while you ride.

1. Don't blink, you might miss it all!
2. Find the points on the ride where you will begin and end each timing.
3. As the car reaches the start, begin timing the ride.
4. When the car reaches the stopping point, stop the watch.
5. Record your time on the data table.
6. Repeat timing to ensure its accuracy (take an average of your times).
7. Record your data on the data table.
8. Before riding, observe the speed of the ride from the ground. Describe your thoughts.
9. As you ride, describe the effect the speed has on you.
10. Explain the effects velocity has on the degree of thrill or entertainment provided by the ride.

Enrichment

1. Find the number of feet in a mile and seconds in an hour. Now determine the speed of the ride in miles per hour.

2. Determine the velocity of the ride at other points in its travel.

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DATA TABLE

Name of Ride (you select):______________________________

Steepest Climb:______________________________
- Distance (given)______________________________
- Time (seconds)______________________________
- Velocity (feet/second)______________________________

Steepest Drop:______________________________
- Distance (given)______________________________
- Time (seconds)______________________________
- Velocity (feet/second)______________________________

Total Ride:
- Distance (given)______________________________
- Time (seconds)______________________________
- Velocity (feet/second)______________________________

Velocity = distance given divided by time

A New Angle

Overview

Tilted back, thrown forward, forced to the left, and shoved to the right. The changes can come about slowly or instantaneously - you never know which way you're going to be moved next. The change in a ride's angle causes a corresponding alteration in the passenger's position. What is it about a ride's angles that makes the ride amusing or thrilling?

Goals

Observing	Classifying
Measuring	Data
Writing	Resourcefulness and Creativity
Problem Solving	Expanding Existing Knowledge

Materials

Sexton Height-O-Meter (be sure students know how to read the angles).

Directions/Activity

1. Move to a place where you have an unobstructed view of the slope of which you are measuring the angle.
2. Line up the base line of the height-o-meter with the track or path being measured.
3. Let the string swing free until it comes to a rest.
4. Measure the angle created by the string and the base line.
5. Record your measurement on the data table.
6. Repeat the process with different parts of the ride.
7. Draw a diagram of the ride and label where each measurement was taken.
8. Before riding, observe the steepness of the ride's ascents and descents and describe how you think it will feel to ride.
9. After you ride and reach each of the angles you've measured, describe the impact the tilt has on you.

Enrichment

1. Many of the rides have tracks that bank from left to right. You can measure the angle of the banking the same way as previously done if you can get a clear side view.
2. Count and record the number of different ascents, descents, left banks, and right banks. Does the number of tilts and banks and their directions determine how thrilling or entertaining the ride is?

3. What would happen if the angles were changed? Could you make them more sharp or more gentle? Project what would happen in each situation and explain.

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DATA TABLE

Number Of...

Ride	L1	L2	L3	Ascents	Descents	Left Banks	Right Banks
Yankee Cannonball Roller Coaster							
Canobie Corkscrew							
Policy Pond Log Flume Ride							
Kiddie Dragon							

use “+” to indicate ascent
use “-” to indicate descent

Round in Circles

Overview

Sometimes you just go and go, yet never seem to get anywhere. You're just running in circles. So, how far did you really go to get nowhere?

Goals

Observing	Computing
Mathematical Reasoning	Number
Data	Resourcefulness and Creativity
Problem Solving	Creative Thinking
Expanding Existing Knowledge	

Materials

Watch with Second Hand or Stopwatch (for enrichment only)

Directions/Activity

1. As the ride begins to move (you can do this as you ride or while watching the ride from the side), count the number of times you go around before the ride stops.
2. Record this number on the data table.
3. Repeat your count several times to ensure its accuracy. You may want to take an average of your counts.
4. Which ride took you the greatest distance?
5. Why can't you use this method for figuring the distance in which the Pirata and Psychodome travel?

Enrichment

1. By timing each of the rides you can also determine its speed. How long did the average ride last? Which of the rides was the fastest? Do you prefer a long ride or a fast ride? Explain.

2. The horses on the Carousel are always jumping. How many jumps do they make during one full revolution of the Carousel? How far can they jump? If the ride continued non-stop for an hour, how far would they run and how many times would they jump?

3. Discuss the reasons people might give for liking "go-nowhere" rides. Poll 25 people before they ride and another 25 people who have already ridden. Graph the results of your poll. What can you infer about this type of ride?

4. Are the horses on the outside of the Carousel going the same speed as the horses on the inside?

DATA TABLE

Ride	Radius (ft.) (given)	Circumference C=pi(d)	Times Around	Distance Traveled D=T(C)
Giant Sky Wheel				
Carousel				

Use 3.14 for pi.

Castaway Island

The Canobie Water Treatment Facility treats the water supply of Canobie Lake to produce high quality of drinking water. The facility has a capacity to provide up to 6.0 million gallons per day.

1. How many Castaway buckets could be filled with Canobie Lake drinking water?

   The bucket at Castaway Island fills to 200 gallons.

2. Using the Castaway bucket, how many hours would it take to fill and spill the 6 million gallons of water treated each day?

   The Castaway bucket flips once every minute.

Policy Pond Log Flume

The Log Flume is a scenic ride with a real splash at the end. The ride takes you through a series of turns ultimately climbing a ramp where you will drop 12 meters in a pool of water.

1. Estimate the speed of the water at the end of the pool by the following method. The length of the boat is 3 meters. Pick a spot near the end of the channel and measure how long it takes the boat to pass that spot. The speed of the water will be the boat length divided by the time to pass.

   Speed of water = __________ m/s

2. Assuming there is no friction, and that the speed of the boat at the top of the ramp is zero, compute the speed of the boat as it enters the pool.

   Speed of boat = ___________ m/s   _________ MPH

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Dodgems

1. What happens in a collision to each car when;

    a) one bumper car is not moving?

    b) there is a collision with a stationary object?

    c) Cars sideswipe?

2. Why do cars have rubber bumpers?

3. Estimate the average speed of a bumper car

    Speed = _________ m/s ____________ MPH

4. Assuming the mass of the car to be 40 Kg, calculate the kinetic energy of the car you are driving. (Be sure to include your mass in the calculation)

    __________ joules

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Giant Sky Wheel

This is quite a calm ride, unless you have acrophobia. The sensation of "G" forces is not as prominent in this ride as it is in others. However, you do feel a slight sensation of zero gravity. The ride has 20 cars on a 22 meter diameter wheel. A maximum of 4 adults per car are allowed.

1. While observing the ride, obtain the time of one revolution at full speed

   _______ seconds

2. Calculate the frequency of RPM's. Use a stopwatch and an assistant to count the RPM's

   ________ Calculated RPM's

   ___________ Counted RPM's

3. What is the circumference of the Giant Sky Wheel?

   Circumference = ____________

4. If the Giant Sky Wheel were to roll down Route 93 all the way to Boston (60Km) how many revolutions would the wheel make?

   _______ Revolutions

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Xtreme Frisbee

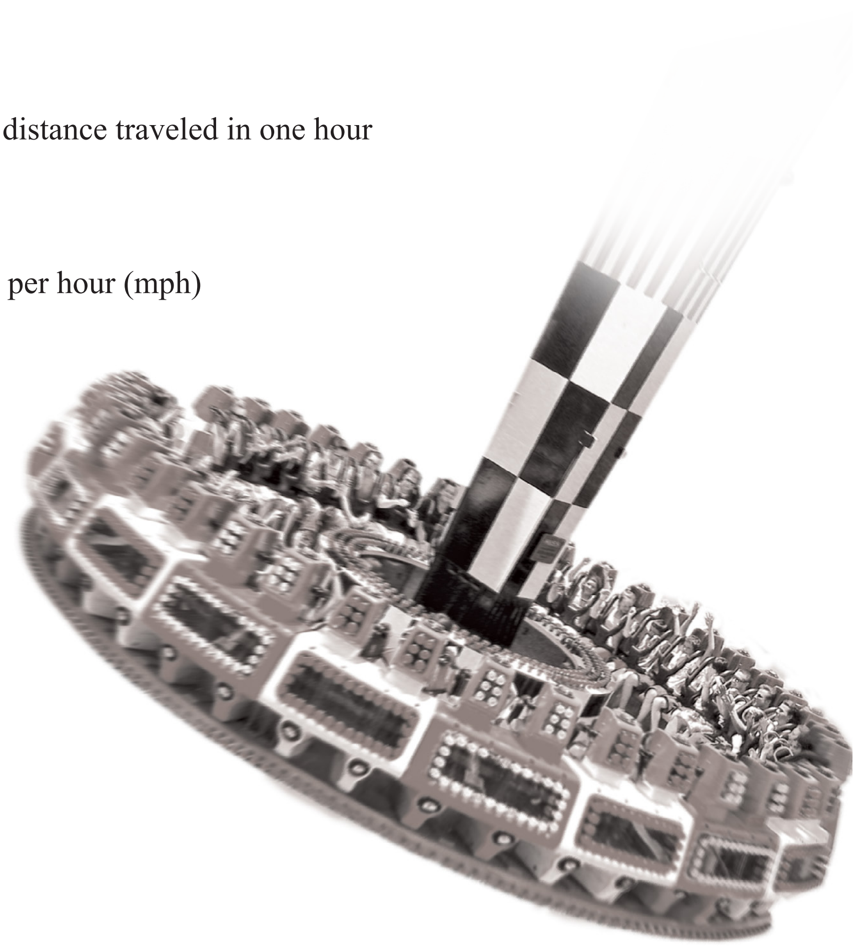
1. Calculate the speed of each rider in the Xtreme Frisbee ride in miles per hour (mph).

2. Calculate the total distance (circumference) around the “Frisbee”
   The diameter of the Frisbee is 27 feet.
   Circumference = 3.14 x diameter

3. Calculate the total distance traveled in one minute.
   The Frisbee rotates at 15 revolutions per minute (rpm)

4. Calculate the total distance traveled in one hour

5. Convert into miles per hour (mph)



Yankee Cannonball Roller Coaster

The Yankee Cannonball Roller Coasters is a good example of the interchange of energies, especially Gravitational Potential Energy to Kinetic Energy. At the bottom of the first hill, the train is pulled to a vertical height of 19 meters. At the top of the hill, the train is released and the momentum is now provided by gravity.

The first drop is approximately 17 meters (53 feet) vertically on a track that makes an angle of about 45 degrees. The ride terminates at the station taking you an approximate distance of 670 meters. (1,840 feet)

1. While waiting, use your stopwatch to measure the total period of the ride from the top of the first hill until the train returns.

   _________ seconds

2. Calculate the average speed of the ride using the total distance and the period.

   _________ KPH ____________ MPH

3. Each car of the train weigh 6300 newtons. There are 3 cars per train, and each car seats 18 people.

4. Assume that the train is filled with riders who average weight is 540 newtons (120 pounds). How much total work (in joules) is done in getting the train to the top of the first hill?

   ___________ joules

From the top of the first hill, calculate the following. (Assume that friction is negligible)

1. What is the potential energy of just your body at the top?

   Hint: a.) You must covert your weight into newtons.
   b.) use the formula; GPE = W x H

   GPE = __________ joules

2. What is your speed at the bottom of the first hill?

   ________ KPH ____________ MPH

3. What is the kinetic energy of your body at the bottom of the first hill?

   __________ joules

4. Why are the curves banked?

5. Describe the sensation you feel at the bottom of any hill.

6. How does the previous sensation compare with the sensation felt as you pass over the top of the next hill?

7. Why is the second hill shorter than the first?

8. Identify three sources of friction in the ride.

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Which Rides Last Longest

Which Rides Last Longest, Go Furthest, Go Fastest?

During your visit to Canobie Lake Park, keep a record of how much time each ride lasts on the data table below. Whenever possible, try to calculate the distance the ride traveled. To do so, you may try to find the velocity and then multiply this by the time the ride lasted.

Data Table

Ride	Time	Velocity	Distance

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Bonus Challenge Questions!!!!

1. How long would it take the Antique Car and the Train to get to New York City if NYC is 350 miles from Salem?

   Antique Car _____________ Train _____________

2. Visit the Pitching Challenge and throw the baseball as fast as you can. Assuming the baseball has a mass of .5 kg, what would be the kinetic energy of the ball when you threw it?

   K.E. = _________________

3. Go to the Boston Tea Party. If the length of a "boat" is 6 meters, what is the speed of the boat at the bottom of the drop?

   Speed (km/hr.) _______________ Speed (mph) ______________

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