Mathematics & Science Day

Integrated Mathematics & Science Activities

For Middle School

Grades 6 – 8

GENERAL INTRODUCTION

To the Teacher and Students:

The activities in this workbook were written to focus on specific skills and interesting questions about the rides and other features throughout the property at the **Kemah Boardwalk.** Our activities incorporate mathematics and science appropriate for the middle grades. We recommend that you take the time to carefully look at these activities to choose which ones are appropriate for your lesson plans. We believe that students should be given a reasonable set of well-defined lesson goals to accomplish at the park.

Students will have a more enjoyable and successful day at the park if they have had practice with a variety of measuring devices *before* visiting the **Kemah Boardwalk.** If you want students to use Height Finders, we suggest that they are constructed and used for practice before coming to the park. When constructing the Height Finder you can either copy the page from this workbook onto **card stock** or run regular copies that can be cut and attached to **index cards**. Laminating the Height Finder will keep them in better working condition for a longer period of time. You should also discuss measurement and data-gathering tools, strategies, and concepts with students before coming to the park.

We have included information that would allow you or your students to develop additional activities or questions if you so desire. Data about the rides and an activity template can be found in the teacher section.

Electronic data-collecting devices can be used on any of the activities but were not included because some schools have not yet acquired the needed technology. If you have been using this technology and feel comfortable letting students take it to the **Kemah Boardwalk**, please feel free to add the equipment needed and adjust the activities to accommodate the change in procedure.

We hope you enjoy your day of fun with science, mathematics, and discovery at the Kemah Boardwalk!

TAKS/TEKS

Grades 6-8 Math TAKS Objectives and Correlated TEKS

Objective 1: The student will demonstrate an understanding of numbers, operations, and quantitative reasoning.	
6.1 Number, operation, and quantitative reasoning. The student represents and uses rational numbers in a variety of equivalent forms. The student is expected to: (E) identify factors of a positive integer, common factors, and the greatest common factor of a set of positive integers; and	Aviator – Using problem solving techniques
6.2 Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, and divides to solve problems and justify solutions. The student is expected to: (B) use addition and subtraction to solve problems involving fractions and decimals;	Before you go to the Boardwalk
7.2 Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, or divides to solve problems and justify solutions. The student is expected to: (B) use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals; (D) use division to find unit rates and ratios in proportional relationships such as speed, density, price, recipes, and student-teacher ratio; (F) select and use appropriate operations to solve problems and justify the selections; and (G) determine the reasonableness of a solution to a problem.	Boardwalk Beast - Finding the Distance
8.2 Number, operation, and quantitative reasoning. The student selects and uses appropriate operations to solve problems and justify solutions. The student is expected to: (A) select appropriate operations to solve problems involving rational numbers and justify the selections; (B) use appropriate operations to solve problems involving rational numbers in problem situations; (C) evaluate a solution for reasonableness; and (D) use multiplication by a given constant factor (including unit rate) to represent and solve problems involving proportional relationships including conversions between measurement systems.	Boardwalk Beast - Finding the Distance Drop Zone - Determining the height Aviator - Calculating the speed of the ride

Objective 2: The student will demonstrate an understanding of patterns, relationships and algebraic reasoning.	
7.3 Patterns, relationships, and algebraic thinking. The student solves problems involving direct proportional relationships. The student is expected to: (A) estimate and find solutions to application problems involving percent; and (B) estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units.	Double-Decker Carousel – Calculating percentages
7.4 Patterns, relationships, and algebraic thinking. The student represents a relationship in numerical, geometric, verbal, and symbolic form. The student is expected to: (A) generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, and scaling; (B) graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling; and	Back at School
8.3 Patterns, relationships, and algebraic thinking. The student identifies proportional or non-proportional linear relationships in problem situations and solves problems. The student is expected to: (B) estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates.	Boardwalk Bullet - Finding the Distance and/or Determining the height Drop Zone – Determining the height Double-Decker Carousel – Calculating percentages

Objective 3: The student will demonstrate an understanding of geometry and spatial reasoning.	
(7) Geometry and spatial reasoning. The student uses geometry to model and describe the physical world. The student is expected to: (A) draw three-dimensional figures from different perspectives;	Double-Decker Carousel – Calculating percentages Ferris Wheel – Draw different perspectives

Objective 4: The student will demonstrate an understanding of the concepts and uses of measurement.	
6.8 Measurement. The student solves application problems involving estimation and measurement of length, area, time, temperature, volume, weight, and angles. The student is expected to: (A) estimate measurements (including circumference) and evaluate reasonableness of results; (B) select and use appropriate units, tools, or formulas to measure and to solve problems involving length (including perimeter), area, time, temperature, volume, and weight; (C) measure angles; and	Stingray Reef – Tank volume Boardwalk Bullet - Determining the wait
7.9 Measurement. The student solves application problems involving estimation and measurement. The student is expected to: (A) estimate measurements and solve application problems involving length (including perimeter and circumference) and area of polygons and other shapes;	Boardwalk Bullet – Finding the highest point on the ride
8.9 Measurement. The student uses indirect measurement to solve problems. The student is expected to: (B) use proportional relationships in similar two-dimensional figures or similar three-dimensional figures to find missing measurements	Drop Zone – Determining the height

Objective 5: The student will demonstrate an understanding of probability and statistics.	
6.9 Probability and statistics. The student uses experimental and theoretical probability to make predictions. The student is expected to: (B) find the probabilities of a simple event and its complement and describe the relationship between the two.	Games – Determine the probability

Objective 5: The student will demonstrate an understanding of probability and statistics.	
6.10 Probability and statistics. The student uses statistical representations to analyze data. The student is expected to: (B) identify mean (using concrete objects and pictorial models), median, mode, and range of a set of data; (D) solve problems by collecting, organizing, displaying, and interpreting data.	On the Boardwalk
7.12 Probability and statistics. The student uses measures of central tendency and variability to describe a set of data. The student is expected to: (A) describe a set of data using mean, median, mode, and range; and	Determining the wait

Objective 6: The student will demonstrate an understanding of the mathematical processes and tools used in problem solving.	
6.11 Underlying processes and mathematical tools. The student applies Grade 6 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. 7.13 Underlying processes and mathematical tools. The student applies Grade 7 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. 8.14 Underlying processes and mathematical tools. The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school.	The Aviator – Using problem solving techniques

LIST OF EQUIPMENT NEEDED

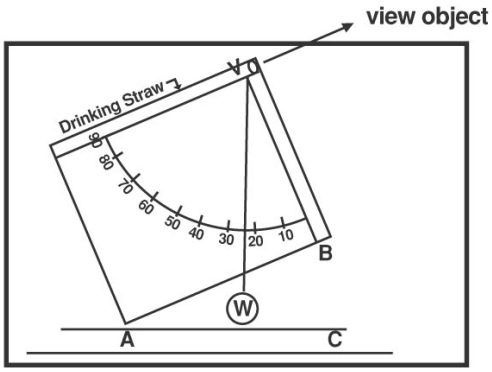
1. **Watch**- one person per group should have a watch with a second hand or a stopwatch.
2. **Height Finder**- Construct as indicated on the following page or bring one from the school made for this purpose. One per group (Materials for construction: kite string, paper clips, drinking straws, tape, index cards)
3. **Measuring tape** with centimeters – one per group
4. **Pencil and Kemah Boardwalk Activity Workbook**
5. **Backpack** or fanny pack per group to hold equipment when on rides
6. **Coin** or one inch metal washer
7. **Calculator** – one per group
8. **Extra Scratch Paper**

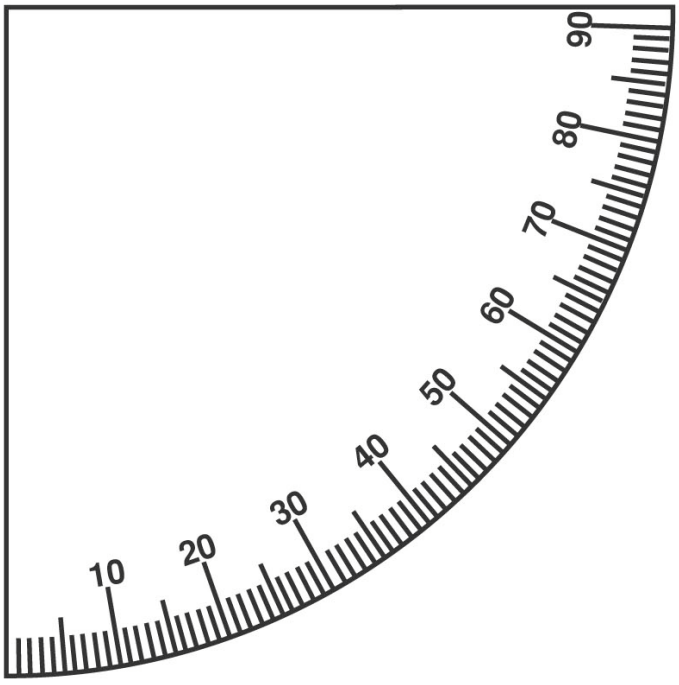
CONSTRUCTING A HEIGHT FINDER (SEXTANT)

Have students construct a height finder before going to the park:

1. Cut out the protractor below.
2. Glue or type it to an index card so that the 90° edge is along one edge of the card. (Or this page can be copied onto card stock and then cut.)
3. Cut a straw (with a large diameter) the length of the edge of the protractor.
4. Lay the cut piece of straw along the index card where the 90° edge is located and tape is in place (this becomes the scope for sighting the object being measured).
5. Cut a piece of kite string about 20 cm. Open one tip of a paper clip so that it can be used as a pointer. Attach the string to the curved end of the paper clip.
6. Poke or punch a hole in the index card protractor at the corner opposite the numbers. Attach the other end of the string though the hole. Be sure the string is long enough so that the paper clip pointer hangs across the numbers at the bottom.

When viewing through the straw hold the end opposite of where the string is attached nearest your eye.





TANGENT TABLE

Attach to the back of the Height Finder

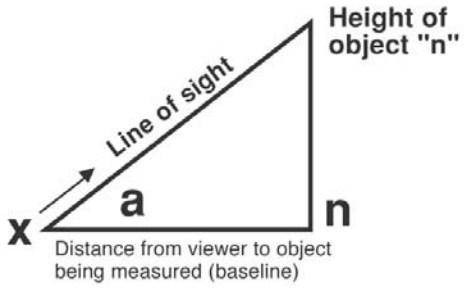
Table of Tangents

Degree	Tan	Degree	Tan	Degree	Tan
0	0.0000				
1	0.0174	31	0.6008	61	1.8040
2	0.0349	32	0.6248	62	1.8807
3	0.0524	33	0.6494	63	1.9626
4	0.0699	34	0.6745	64	2.0603
5	0.0874	35	0.7002	65	2.1445
6	0.1051	36	0.7265	66	2.2460
7	0.1227	37	0.7535	67	2.3558
8	0.1405	38	0.7812	68	2.4750
9	0.1583	39	0.8097	69	2.6050
10	0.1763	40	0.8390	70	2.7474
11	0.1943	41	0.8692	71	2.9042
12	0.2125	42	0.9004	72	3.0776
13	0.2308	43	0.9325	73	3.2708
14	0.2493	44	0.9656	74	3.4874
15	0.2679	45	1.0000	75	3.7320
16	0.2867	46	1.0355	76	4.0107
17	0.3057	47	1.0723	77	4.3314
18	0.3249	48	1.1106	78	4.7046
19	0.3443	49	1.1503	79	5.1445
20	0.3639	50	1.1917	80	5.6712
21	0.3838	51	1.2348	81	6.3137
22	0.4040	52	1.2799	82	7.1153
23	0.4244	53	1.3270	83	8.1443
24	0.4452	54	1.3763	84	9.5143
25	0.4663	55	1.4281	85	11.4300
26	0.4877	56	1.4825	86	14.3006
27	0.5095	57	1.5398	87	19.0811
28	0.5317	58	1.6003	88	28.6362
29	0.5543	59	1.6642	89	57.2899
30	0.5773	60	1.7320	90	----------

USING A HEIGHT FINDER

(Triangulation)

When you want to determine the height of an object that you cannot physically measure, it can be done by applying a little geometry. Imagine that you are at the bottom point **(x)** of a diagonal side (hypotenuse) of a right triangle looking up at the top along the hypotenuse (where the object **(n)** you are measuring is located). The angle **(a)** created between your view up the hypotenuse and a horizontal line from your eyes to the object **(n)** can be measured with the Height Finder. When an object is sighted through the Height Finder, the number of degrees in **angle a** can be read from the pointer. Find the appropriate tangent from the **tangent** table provided.



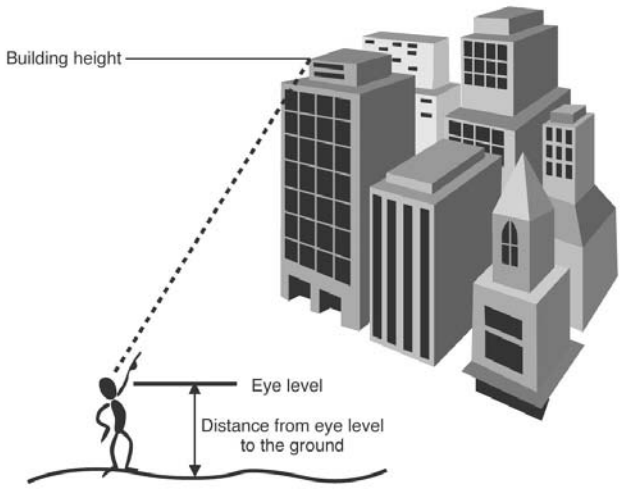
Formula:
Tangent of angle a (in degrees)_____ times the baseline distance (_____ meters) + your eye level height = height of the object

OR

[Tan a°] x [baseline] + eye level = height

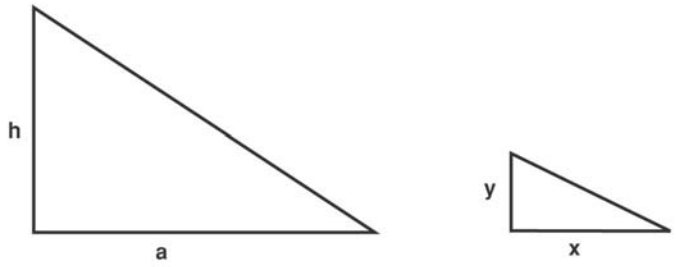
Example:
If angle a = 36°, it would have a tangent of .73. If the distance of the baseline from you to the object were 120 ft. (or 1,440 inches), and your eye level height were 43 inches, then the equation to find the height of "n" would be as follows:

[.73 x 1440 in.] + 43 in. = 1094.2 in. (91.18 ft.)



FINDING THE HEIGHT OF AN OBJECT USING RATIO AND PROPORTION

Method I:



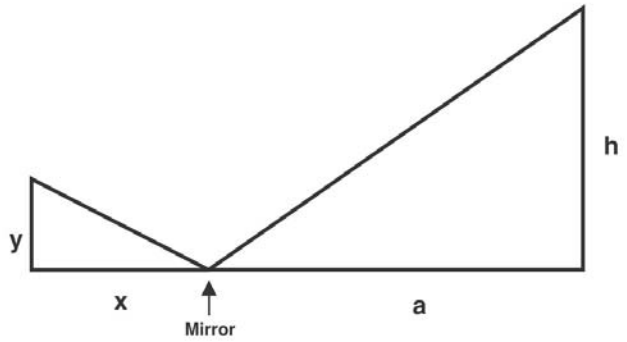
Legend:

h = height of the object
a = length and shadow of the object
y = height of the observer
x = length of shadow of the observer

Equation to solve (solve for h):

$$\frac{h}{a} = \frac{y}{x}$$

Method II:



Legend:

h = height of the object
a = distance from mirror to the object
y = height of the observer
x = distance from the mirror to the observer

Place the mirror so that you can see the top of the object being observed.

Equation to solve (solve for h):

$$\frac{h}{a} = \frac{y}{x}$$

MAKING MEASUREMENTS

Time

The times that are required to work out the problems can easily be measured using a watch with a second hand, a digital watch with a stopwatch mode, or a stopwatch. When measuring the period of a ride that involves circular motion, measure the time for several repetitions of the motion, then divide by the number of repetitions. This will give a better estimate of the period of motion than just making one repetition. You may want to measure two or three times and then take an average.

Distance

Since you cannot interfere with the normal operations of the rides, you will not be able to directly measure heights, diameters, etc. All but a few of the distances can be measured remotely using the following methods. They will give you a reasonable estimate. Try to keep consistent units, i.e., meters, centimeters, etc., to make calculations easier.

- **Pacing:** Determine the length of your stride by walking at your normal rate over a measured distance. Divide the distance by the number of steps you can get an average distance per step. Knowing this, you can pace off horizontal distances.
- **Ride Structure:** Distance estimates can be made by noting regularities in the structure of a ride. For example, tracks may have regularly spaced cross bars as shown in **figure a** below.

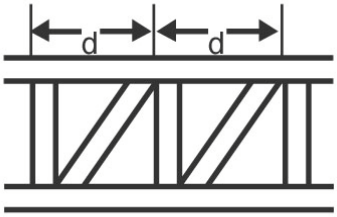


figure a

BEFORE YOU GO TO THE KEMAH BOARDWALK

Planning a Budget

Planning your budget is one of the most important parts of a successful field trip. In order to plan a trip to the **Kemah Boardwalk**, think about any money you may want to take with you.

Mission: Problem solving with decimals: (Math TEKS 6.2B, 7.2B)

Before you go on a field trip you need to plan a budget. If you plan to play two boardwalk games, eat lunch, buy a souvenir, and buy an additional drink during the day, what is a reasonable amount of money to take on your trip?
Justify your answer.

Activity or Item	**Price Range**
Boardwalk Games	$2.00 - $5.00
Meals	$6.00 – $10.00
Souvenirs	$5.00 - $15.00
Drinks	$3.50

Answer:

HISTORY:

It is always good to learn a little about the background or history of places you visit. What could you learn about the place where the Kemah Boardwalk was built?

Mission: Learning about Kemah (Science 7.8C)

Because of Kemah's strategic location, on Clear Lake and Galveston Bay it is often called the "Gateway to the Bay." Kemah was home to the third largest fleet of boats in the United States in the early 1800's and also pirate Jean Lafitte.
Why would having access to the bay and ships be helpful to Kemah and Houston's economy?

SAFETY ESTIMATES

Places like the Kemah Boardwalk are designed to anticipate the number of people that can safely be on the grounds at the same time. Engineers estimate the number of people who can fit in a line for a ride, and the number of people who can ride at any one time for safety reasons.

Mission: Estimating and communicating (Math TEKS 6.10; Science TEKS 6.4 A)

Choose three rides. Estimate the number of people who can ride at one time and describe in terms of median and range.

Answers:

INVERTER

Potential and Kinetic Energy

Even though each ride seems to run so smoothly do you think it takes much effort to make them operate this smoothly? Think about the amount of energy it takes for this ride to operate. Stare at the bay upside down while flipping and soaring to new heights on this pendulum ride with your closest friends.

Mission: Identifying Potential and Kinetic Energy (Science TEKS: 6.2D, 6.8A, 7.2D, 7.4A, 7.7A, 8.2D, 8.6C)

Draw the main shape of the Inverter ride. Put a "P_e" at the locations of two examples of potential energy in the ride and a "K_e" for two examples of kinetic energy. Explain your answers.

Answer:

THE BOARDWALK BULLET

Who Likes to Ride?

This world-class wooden roller coaster is known for its rapid descents, fast aggressive corners, high speed and sudden direction changes. Have you ever wondered who rides roller coasters and why people love these exciting rides? Brave the Bullet! Our one-of-a-kind wooden coaster, with a 92' exhilarating first drop and reaches speeds of over 51 mph. Let's investigate!

Mission: Collecting, graphing and interpreting data (Science TEKS 6.2B, 6.4A, 7.2B, 8.2B; Math TEKS 6.10D)

Observe the ride at least once as a group. What things do you notice about the ride? Gather data by selecting **one** of the following.

a. Does the time vary from ride to ride? Time the ride from beginning to end five times. Do the times vary? Why or why not? Graph your results.

b. Tally the number of males vs. females during three ride cycles. Are there more males than females? Why or why not?

c. Tally the approximate age of the riders in two cycles (classifications should include: child, young adult, adult, and older adult). What age group is the most represented? Give possible reasons for your results.

d. Who rides in the front and in the back of the Boardwalk Bullet? Tally the number of people riding. Do more males ride in the front or the back of the roller coaster? Why?

e. Do you have a question of your own to examine? Investigate a question that can be answered by collecting data.

Highest Point:

The highest point of any ride usually determines how "thrilling" a ride will be for the riders. What is the highest point of the Bullet?

Mission: Finding the height of the highest point on the ride (Math TEKS 6.8, 8.2, 8.3B)

a. To find out, use your height finder by sighting through the straw towards the highest point of the ride. In front of the entrance to the Bullet, you will find a sign (Bullet Height - Begin Here – Need distance to bullet to triangulate height) that shows where to stand to do this activity. What is the distance from there to the base of the Bullet?
b. Use the following formula to determine the height of the ride.

[Tangent of angle a (in degrees)] X [baseline distance (meters)] + your eye level height = height of the object

Answer:

(Another way to do this is by using a graphing calculator – with the trigonomic functions)

Going the Distance:

Measuring the Boardwalk Bullet with all the turns and hills would be a daunting task. It would require a really long tape measure, safety harness, and several assistants. An easier way is by knowing the speed and the time it takes for once complete cycle.

Mission: Finding the distance (Math TEKS: 8.2, 8.3B)

Time the ride from beginning to end. If the speed of the roller coaster is 51 mph then you can calculate the distance by using this formula:

rate (the speed) x time = the distance

Answer:

THE BOARDWALK TOWER

What a View!

How far can you see? At the bottom, not very far but at the top, one can get a bird's eye view of the Kemah Boardwalk and the surrounding areas. Kick back and relax as you soak in all of Kemah Boardwalk and the surrounding Bay! You can see miles away!

Mission: Determining the height of the Boardwalk Tower over the Boardwalk Bullet (Math TEKS 6.8, 8.2, 8.3B)

a. To find out, use your height finder by sighting through the straw towards the highest point of the ride. In front of the entrance to the Boardwalk Tower, you will find a sign (Boardwalk Tower Height - Begin Here – Need distance to tower to triangulate height) that shows where to stand to do this activity. What is the distance from there to the base of the Boardwalk Tower?
b. Use the following formula to determine the height of the ride.
c. Subtract the height of the Boardwalk Tower by the height of the Boardwalk Bullet (p. 21) to determine how much higher the Tower is over the Bullet.

[Tangent of angle a (in degrees)] X [baseline distance (meters)] + your eye level height = height of the object

Answer:

THE AVIATOR

Around and Around You Go

Do you wonder what if feels like to ride aboard a spinning top? Swinging has gone to new heights! You'll feel light as a feather as you soar high above the Boardwalk. Riders on the Aviator are seated in dual seats that swing from a rotating top. With the ability to control the air direction you'll have a swinging good time!

Mission: Calculating the speed of the ride (Math TEKS: 7.2D)

Try this: time the ride from the moment it begins to the end of the ride. Also, count the number of rotations completed in that time. Compute the number of rotations per minute.

Answer:

C.P. Huntington Train

Top Secret

Have you and a pen pal or a friend ever written to each other in a secret code? Some rides on the Boardwalk use whistles or horns to signal directions, starting, stopping, oncoming obstacles, etc.

Mission: Using problem solving techniques (Math TEKS: 6.1E)

As you ride the train around the Boardwalk, listen to the whistle signals determine what they mean. Using the key for Whistle Signals: _____ = Prolong ___ = Long and • = Short, write the pattern every time the engineer signals the whistle and try to determine the meaning. For example: • • • (3 short whistles) means Back Up, After Standing.

Answer:

DOUBLE-DECKER CAROUSEL

Up and Down, Round and Round

Did you know that carousel rides are replicas of ornate, hand carved rides commonly found in Germany in the 1900's? Ride dragons, sea horses, unicorns, horses and many more fun creatures as you learn what makes a carousel special.

Mission: Determining the rate of motion (Science TEKS: 6.2B, 6.4A, 7.2B, 7.4A, 8.2B, 8.4A)

a. Each member of the group should choose a different moving animal to observe. Count the number of times the animal goes up and down in one minute. Record and compare results for each of the animals observed.
b. Determine the time it takes for one complete rotation of the carousel. To do this, chose one animal and time how long it takes to complete an entire rotation. Record your results. Repeat this procedure to check for accuracy.

Answer:

Mission: Calculating percentages (Math TEKS: 7.3A, 8.3B, B.7A)

a. Imagine a bird's eye view of the ride. Draw a diagram to show where the animals are in relation to the center of the ride. Be sure to include an accurate count of the total number of animals.
b. Count the number of stationary animals on the lower level. Determine the percent of stationary animals out of the total number of animals. Determine the percent of animals that ended up in the up position, in the down position, and in the middle position.

Answer:

DROP ZONE

Lose your Stomach

Slowly ascend to screaming heights in anticipation of a free-fall that will leave you begging for more. Experience the feeling free-falling before coming to a soft landing.

Mission: Determine the height (Math TEKS: 7.3B)

Measure the shadow cast by the Drop Zone. Using your partners shadow length and actual height at the same time of the day, determine the actual height of the tower.

Answer:

WIPEOUT

Dirty Laundry

Ever wonder what it would feel like to be inside a washing machine? This exciting ride will spin and rotate, changing speeds and directions to produce a dizzying effect on the riders.

Mission: Describing forces (Science TEKS:6.2D, 6.8B, 7.7A, 8.2D, 8.6C)

A force is a push or pull. Forces are shown with arrows called vectors. Draw arrows in the diagram below to show the forces produced by this ride. Explain why you think the forces are being produced in the directions identified.

Diagram:

Answer:

FERRIS WHEEL

You Say You Want a Revolution

Have you ever thought about what the Boardwalk looks like from different locations? Enjoy the fresh air while riding our Century Wheel, a great choice ride for all ages.

Mission: Draw different perspectives. (Math TEKS: 8.A)

Sketch the Ferris Wheel.
Front View:

Side View:

View from the top (looking down):

HEART OF THE BOARDWALK

Pick a ride, any ride! Use your heart to choose:

Have you ever noticed if your heart seems to beat faster when you get excited? Do you think riding a bike would have the same effect on you? You can find out how fast your heart is beating by taking your pulse and counting the number of beats in a period of time. Try this activity and see what happens to your pulse.

Mission: Looking for differences in pulse rates (Science TEKS: 6.2B, 6.4A, 7.2B, 7.4A, 7.11B, 8.2B, 8.4A)

Find a pulse point on your body (your wrist, neck, or temple). Use a second hand on a watch or use a stop-watch. Count the number of pulses in 15 seconds and multiply by four. Be sure to use your pointer finger (not your thumb). **Take your pulse rate before riding and after.** Is there a difference? Why is this so? You may want to collect this data before and after other rides as well.

BOARDWALK BEAST

Don’t Rock (n Roll) the Boat

Experience an incredible thrill ride on Galveston Bay while cruising at speeds up to 40 mph. The Beast will take you out into the Galveston Bay. During your cruise you will be blasted with wind, music and entertainment. Roaring through the air "the Beast is unleashed"!

Mission: Finding the distance (Math TEKS: 8.2, 8.3B)

Time your ride from beginning to end. If the speed of the Boardwalk Beast is 40 mph then you can calculate the distance you traveled by using this formula:

rate (the speed) x time = the distance

Answer:

Mission: Finding the fuel consumed (Math TEKS: 6.8B, 8.2, 8.3B)

Assuming the Boardwalk Beast burn 50 gallons of Bio-Diesel per hour, how much fuel was consumed during your trip?

Answer:

STINGRAY REEF

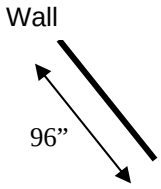
Something is Fishy

Experience the excitement of Stingray Reef, where you can touch and feed live stingrays. Discover these deep-water dwellers up close and personal. Our one-of-a-kind touch tanks offer a hands-on experience you won't soon forget! Journey through our rainforest exhibit with piranhas, snakes, scorpions, tarantulas, turtles and tons more!

Mission: Finding the volume of the stingray tank (Math TEKS: 6.8A, 7.4A)

Draw the shape of the stingray tank. Count the sections of the grey rim of the stingray tank. Assuming the each section is 36 inches in length calculate the perimeter of the tank in inches. Assuming the depth of the tank is 38 inches with an area of 633 square feet (91,184 square inches) and there is 231 cubic inches per gallon of water; calculate the volume of the tank.

$$\frac{\text{Area in inches x Depth}}{231\ \text{in}^3} = \text{the volume}$$



GAMES

Winner Every Time

What are your chances of winning a game? Games can be won by skill, luck or a combination of both.

Mission: Determine the probability (Math TEKS: 6.9B)

Pick a game and describe the probability of winning in one round. Consider the number of participants and the number of chances.

Answer:

BACK AT SCHOOL

Imagine the possibilities

Have you ever thought of a ride that you think would be fun that doesn't exist? What would you have to do to design such a thing?

Mission: Designing a ride (Science TEKS: 8.6C, 8.6A)

Design a new ride that you have never seen before. Draw it and describe what it would be made of and how it would work. Discuss any design problems there might be in making such a ride and propose how you might solve these problems.

Diagram:

Answer:

GRAPHS AND CHARTS

Picture is Worth a 1000 words

Charts are used every day in many things we use and see. It is an important skill to be able to use them to gather and interpret information. See how you do with this information from some of the rides you saw or rode on the **Kemah Boardwalk.**

Mission: Use chart or graph to answer questions.

Specifications:

	Circumference	Diameter	Radius
Boardwalk Tower	100.8 ft	32.1 ft	16.05 ft
Aviator	290.5 ft	92.5 ft	46.25 f
Wipeout	147.9 ft	47.1 ft	23.55 ft

Describe the relationship between radius, diameter and circumference.

Generate the formula for finding the circumference of a circular object from the information given.

Find the circumference of a ride given a radius of 36.75 feet and explain what type of ride this may be.