# TRIP TO THE AQUARIUM Project Based Learning 

## $5^{\text {th }}$ Grade Print \& Google Slides



## 00000000000000 <br> LIFE IN THE RAINFOREST-1

bit at the aquarium. One of their most popular ane poisons, and some ibit a differt colors and sizes. jump. Use the data in the

 | Average length of frog in inches |
| :--- |
| Distance of one jump (in feet) | Distance of one jump (in inches) jumps 9 inches, $15-9=6$ umes its body length does the cuban Tree Frog 2 What is the your answer

Red eyed inches diff

## LIFE IN THE RAINFOREST- 2

More popular animals to see in the Life in the Rainforest exhibit are the snakes. The snakes live in snakes.
$\qquad$

|  | SNAKE LENGTHS WHEN FULLY GROWN |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Boa | Python | King | Viper | Coral | Cobra |
| Length in Feet | 102 | 60 | 72 | 33 | 5 | 144 |
|  | 8. | 5 | 6 | 2.75 | 4. 25 | 12 |

## -

 $\begin{array}{lll}0 \\ 0 & \text { 1. Convert the distance each } \\ 0 & \text { Jistance Jumped between the Red Eyed Tree Frog and the Bla } \\ 0 & \end{array}$ sn ference in anuation. 000

Convert the length of each snake to feet. Write your answers in the table as decimals

2 There are three fully grown Coral snakes at the would they be? Draw a model to show your answer. Write your answer as a decimal. 3 (coral snakes) $\times 4.25=12.15 \mathrm{feet}$
3. A baby cobra was born in May. It was 9 inches long. In December, it measured 87 inches. How many foet did the cobra grow from Mav tn namamhnon ol............. as a decimal

[^0]1. There are $14 /$
the "Group of 50" pricing?
$50 @ \$ 397.00 \times 2=\$ 794.00$; then 47 students

## 00000000 <br> CHALLENGE 1: SEAL FEEDINGS-1

Aqua-Land allows visitors to watch the seal feedings four times per day. Each seal eats a total of abolow about seal feedings.
fish per day. Answer the tach day, she eats 22 pounds
I. Margo is a fussy eater and only eats tuna. Each feeding?
 Draw a model to show your thinking.

$$
\begin{aligned}
& \text { raw a model to show your thinking. } \\
& 22 \div 4=5.5 \text { or } 5 \frac{1}{2} \text { pounds per feeding }
\end{aligned}
$$

2. Coco eats a mix of half raw squid and half raw salmon at each week? Show how you know.
3. Franke eats more fish than the other seals. Each day, he eats $63 / 4$ pounds of raw pounds of raw fish does Franko eat each day? Draw a $13 \frac{1}{2}$, and two meals of model to show your thinking. als of $6^{3 / 4}+6^{2 / 4}=13 / 2$, and of raw fish per day. Franko eats 2 me , add $13 \frac{1}{2}+10^{1 / 2}=24 \mathrm{po}$
$51 / 4+5^{1 / 4}=10 \frac{1}{2}$, and Sea Life Aquarlum? 4. How many pounds of raw fish is eaten by the seals each week at Aqua-Land pound 5 per day, and Margo eats 22 pounds per day, $\operatorname{coc} 0$ eats franko eats 24 pounds per day, $22+17+24$ each week by the seals. day. $63 \times 7=441$ pounds of raw

## Promotes critical thinking and problem solving.



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## FOR THE TEACHER

A TRIP TO THE AQUARIUM is a project-based learning task that provides students with real world problems as they practice the following math standards:

- 5.NBT.A.I Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and I/IO of what it represents in the place to its left.
- 5.NBT.B. 5 Fluently multiply multi-digit whole numbers using the standard algorithm.
- 5.NBT.B. 6 Find whole number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between mult/div. Illustrate and explain calculations.
- 5.NBT.B. 7 Add, sub., mult., and div. decimals to the hundredths, using concrete models, drawings, or strategies based on place value, properties of operations, and/or the relationship between add/sub. Relate to a written method and explain reasoning.
- 5.NF.A.I Add/sub fractions with unlike denominators by replacing given fractions with equivalent fractions, in such a way as to produce an equivalent sum or difference of fractions with like denominators.
- 5.NF.A. 2 Solve word problems involving add/sub of fractions referring to the same whole, including cases of unlike denominators.
- 5.NF.B. 3 Interpret a fraction as division of the numerator by the denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
- 5.NF.B. 4 Apply and extend previous understanding of multiplication to multiply a fractions or whole number by a fraction.
- 5.NF.B. 6 Solve real world problems, involving multiplication of fractions and mixed numbers.
- 5.MD.B. 2 Make a line plot to display a data set of measurements in fractions. Use operations to solve problems in the line plots.


## DIRECTIONS

I. Assign students to work alone or in small groups.
2. Preview the activity with your students.
3. Allow students class time to complete the activity. This can span over several days.
4. Students have an opportunity to complete optional extra challenge activities.
5. Students will complete the self-evaluation reflection and evaluation rubric.
6. Allow students an opportunity to share their completed projects.


## A TRIP TO THE AQUARIUM

Welcome to your school field trip adventure. In this packet you will help to plan your class field trip to a local aquarium.

## HERE ARE YOUR TASKS

- Read through the entire packet before beginning.
- Read the informational slide about your school field trip.
- Calculate ticket prices for adults and students.
- Answer word problems about ticket pricing.
- Determine the best option for transportation based on prices, seating, and travel speed.
- Solve time-related word problems about busing.
- Help divide students into groups for chaperones.

- Create a schedule and timeline for the day by choosing shows and exhibits.
- Calculate the ages of the dolphins.
- Explore penguin data to create a bar graph and a line plot.
- Write questions to share with a friend using the data from your bar graph.
- Compare distances the rainforest tree frogs can jump.
- Compare the lengths of the rainforest snakes.
- Use data to determine weights and ages of the Galapagos Tortoises.

- (Optional) Challenge pages: Calculate cost to feed the seals each week. Then, determine the amount of money donated to the Coral Reef Alliance.
- Complete the self-reflection and evaluation rubric.

(c) Pulue Boches

PLANNING A SCHOOL TRIP TO THE AQUARIUM
Your grade always ends the school year with a special field trip. This year, the students voted to visit the Aqua-Land Sea Life Aquarium. It is the largest aquarium in your state and has an amazing display of sea life and animal shows. The Aqua-Land Sea Life Aquarium is home to thousands of aquatic animals and offers a wide range of science exhibits to interest people of all ages. They are proud of their large touch tank and huge coral reef tank that houses hundreds of saltwater sea life.

All successful school field trips begin with excellent planning. You, several of your classmates, and your teachers have volunteered to work on the planning committee. You will help determine how much the field trip will cost. You will also help make decisions about renting buses, creating a schedule for the day, and choosing educational classes. However, the most important task for the planning committee is to make sure everyone stays safe and has fun. So, let's get busy planning the very best field trip of the year.


You will work with Arnie to determine ticket prices for your class trip to the Aqua-Land Sea Life Aquarium. Use the table to answer the questions below.

I. There are 147 students in your grade going on the full-day field trip. How much will it cost for all students if you use the "Group of 50" pricing?
2. How much money will your school save by paying the "Group of 50 " price for students? Show your comparison.
3. There are 8 classroom teachers and 8 classroom assistants going on the field trip. They will pay the adult full-day admission price. What is the total cost for the adults? Show how you know.

(c) Aulie Boches

Now that the planning committee has completed purchasing tickets, it is time to consider options for transportation to Aqua-Land. Use the information in the table to answer the questions below.

|  | TRANSPORTATION |  |
| :---: | :---: | :---: |
|  | Cost per Bus | Seats per Bus |
| SCHOOL BUSES | $\$ 149.00$ | 48 |
| COACH BUSES | $\$ 227.00$ | 64 |

I. How many people will be traveling by bus to Aqua-Land? Include students, teachers, instructional assistants, and chaperones. Show your thinking on the number line below.
2. Determine how many buses you would need to rent for each type of bus. Show how you know.

> SCHOOL BUSES


COACH BUSES

3. Calculate how many extra seats there will be for each type of bus. Show how you know.

EXTRA SEATS ON SCHOOL BUSES
EXTRA SEATS ON COACH BUSES
$\square$
$\square$

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I. Divide the number of students in each class into groups that are of similar size. Show your work on the table.
2. How do Ms. Rodrigues' and Mr. Brown's classes differ from each of the other classes?


## SCHEDULE FOR THE DAY- 1

Busses will arrive at the aquarium at 8:45. After purchasing tickets, each group will be ready to start their day at 9:00. All chaperones will receive this schedule of shows and events. Together, each chaperone and their students will create a schedule for the day. The only rules they must follow are:

1. Pick one time for each show. Be sure shows do not overlap.
2. Every chaperone must include 25 minutes for a lunch break for their group.

3. Leave 10 minutes at the end of the day for a bathroom break before boarding the buses.
4. Everyone must be on the buses by $4: 25 \mathrm{pm}$.

HERE IS TODAY'S SCHEDULE FOR AQUA-LAND SEA LIFE AQUARIUM.


Solve the word problems below.
I. Millie is a 42 -year-old dolphin who has lived at the aquarium for over 40 years. One of her offspring, Ziggy, also lives at the aquarium. Ziggy was born when Millie was 8 years old. Complete the In/Out machine to help you find out how old Ziggy is now.

|  | IN AND OUT MACHINE |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Millie's Age | 9 | 10 | 15 | 19 | 23 | 27 | 31 | 39 | 42 |
| Ziggy's Age | 1 |  |  | II |  |  |  |  |  |

2. What is the rule for the $\mathrm{In} /$ Out machine?
3. How old is Ziggy now? Show how you know.
4. How old will Ziggy be when Millie is 54 years old?
5. How old was Millie when Ziggy had his $18^{\text {th }}$ birthday? Show with an equation.

The penguin habitat is a major attraction at Aqua-Land Sea Life Aquarium. There are 10 different types of penguins that live at the aquarium. Use the data below to create a bar graph of the number of penguins you will see on your field trip. Write a title in the gray box.


Life in the Rainforest is an amazing exhibit at the aquarium. One of their most popular attractions is the display of tree frogs. They come in all different colors and sizes. Some are poisonous, and some are not. One of the more exciting experiences is seeing the tree frogs jump. Use the data in the table to answer the questions about the rainforest tree frogs.

|  | ( RAINFOREST TREE FROGS |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Red Eyed | Blue Dart | * Squirrel | "Amazon | Cuban | Goliath |
| Average length of frog in inches | 2.5 inches | 1.5 inches | I inch | 6 inches | 3 inches | 12 inches |
| Distance of one jump (in feet) | 1.25 feet | 0.75 feet | 0.5 feet | I. 5 feet | 3.0 feet | 2.5 feet |
| Distance of one jump (in inches) |  |  |  |  |  |  |

I. Convert the distance each frog jumps from feet to inches. Add the numbers to the table.
2. What is the difference in the distance jumped between the Red Eyed Tree Frog and the Blue Dart Tree Frog. Show your answer in inches with an equation.
3. The Amazon Tree Frog jumps 3 times its body length. How many times its body length does the Cuban Tree Frog jump? Show how you know.
4. How many jumps does a Red Eyed Tree Frog take to go the same distance a Goliath Tree Frog can jump in one jump?

## CHALLENGE 1: SEAL FEEDINGS-1

Aqua-Land allows visitors to watch the seal feedings four times per day. Each seal eats a total of about 12 to 20 pounds of raw fish per day. Answer the questions below about seal feedings.
I. Margo is a fussy eater and only eats tuna. Each day, she eats 22 pounds of raw tuna. How many pounds of tuna does she eat at each feeding?

| SEALS AT AQUA-LAND |  |  |
| :--- | :--- | :--- |
| Name | Age | Weight |
| Margo | 15 years old | 245 pounds |
| Franko | 21 years old | 282 pounds |
| Coco | 8 years old | 220 pounds | Draw a model to show your thinking.

2. Coco eats a mix of half raw squid and half raw salmon at each meal. She eats a total of 4.25 pounds of raw fish at each feeding. How many pounds of raw fish does Coco eat each week? Show how you know.
3. Franko eats more fish than the other seals. Each day he eats 6.75 pounds of raw tuna for his first and last meals and 5.25 pounds of squid for his middle two meals. How many pounds of raw fish does Franko eat each day? Draw a model to show your thinking.

## CHALLENGE 2: GIFT SHOP

The Aqua-Land Gift Shop sells a set of plush stuffed sea animals. It is one of the best-selling items in the shop. Each week in June and July the gift shop donates $10 \%$ of the sales of the plush animal set to the Coral Reef Alliance. This alliance helps to make coral reefs healthier for the millions of sea animals that live there. Use the data in the table to answer the questions below.

I. Calculate the amount of money that will be donated each week in the month of June.
2. What is the total amount of money donated to the Coral Reef Alliance in the month of June?
3. Round the amount of money donated each week to the nearest tenth. Write the numbers in the table.
4. The Aqua-Land Gift Shop donated a total of $\$ 1280.91$ for the months of June and July combined. How much money did they donate in July?

## RUBRIC

SELF-EVALUATION RUBRIC: Shade the descriptor in each column that best explains how you would evaluate yourself on this project.

|  |  | I felt very confident <br> about the math in this project. |
| :---: | :---: | :---: |
| I felt pretty good about <br> my ability to complete the <br> math in this project. | I felt a lot of the math in <br> this project was too hard <br> for me to do alone. |  |
| I understood all the math <br> and did not need help to <br> complete the problems. | I understand most of the math <br> but needed a little help to solve <br> some of the problems. | I understood some of the <br> math but needed help to <br> complete most of the problems. |
| I easily used many strategies <br> to solve the math <br> problems efficiently. | I needed some help to <br> determine the best strategies <br> for solving the math problems. | I had trouble understanding <br> the best way to solve many <br> of the math problems. |
| I feel I am ready for a <br> harder math project. | I feel I would like to <br> spend more time practicing <br> similar math problems. | I feel I need assistance to <br> work on similar math problems. |

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