

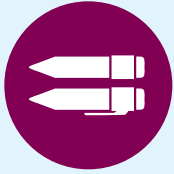
ADVANCED LEARNING LABS

A partnership between the North Carolina Department of Public Instruction and Duke TIP
TO ENGAGE, ACTIVATE, AND GROW OUR STUDENTS

GRADES

2-3

Lab 2 • Exploration



ELA

An “Origin Story” is a fictional story that explains why something is the way it is (why a tiger has stripes or why a snake has no legs, for example). Explore your imagination or your environment to choose something that interests you. What is its origin? Create our own story about why something is the way it is.

Write out a play with 2-4 characters and dialogue between them to explain why something is the way it is. Be sure to include details to describe actions, thoughts, and feelings. If possible, act out the play with friends and/or family members.



SOCIAL STUDIES

Demand is how much people want or need to buy something. **Supply** is how much of something there is available for sale. When supply is up, the price/cost decreases. When demand is up, the price increases.

Pretend to be a news reporter and write a newspaper article or a script for television news sharing what you have noticed about current gasoline prices. Explain why you think the prices are changing and how that can affect the amount of gasoline people buy.

How do the principles of supply and demand work with goods other than gasoline? Explore other examples and discuss with a family member.



SCIENCE

Push a ball away from you, so it hits another ball. Observe what happens and draw a diagram of the collision with arrows. Use arrows to show how they were moving before and after the balls hit each other.

Predict what would happen if you rolled the ball faster or slower. Explain why you think that?

How would your results change if the ball were heavier or lighter? Test your predictions to see if your hypothesis is correct.



MINDFULNESS

Let's blow bubbles!

While blowing bubbles, focus on taking deep, slow breaths and exhaling slowly to fill each bubble. Explore the bubbles. Relax, breathe slowly, and watch the bubbles float away.

What is something you notice? Imagine yourself riding on the bubbles as they float. Would you sit calmly and ride, or would you bounce from bubble to bubble? Draw and color a picture of yourself and the bubbles.

Follow directions at the link below to make your own bubbles.

Link: <https://www.homesciencetools.com/article/how-to-make-super-bubbles-science-project/>



LOGIC PUZZLE

It's musical mayhem!

Use the grid puzzle and the clues you are given to figure out the musical instrument each student is learning to play.

Link: <https://bit.ly/3bMhee1>



FIELD STUDIES

Take a trip to Mars!

Explore the red planet using the Curiosity rover in the Access Mars virtual experiment link:

<https://accessmars.withgoogle.com/>

Why do we explore other planets? Investigate the differences you noticed between the land on Mars and our land on Earth.

Draw and label a picture or create a model out of materials you find in your home of a new rover that could be used to explore both the terrain of Mars and Earth.

Explain your rover and the reasons behind its design features to a friend or family member.



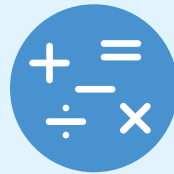
RESEARCH EXPLORATIONS

Engineers experiment with different materials to find what works best in a situation. Visit the link below to learn more about paper hovercrafts. Find four different materials such as paper, cardboard, aluminum foil, and newspaper to create a hovercraft.

First, predict which will travel the farthest. Then make a hovercraft out of each material. Test them to see which travels farthest.

Experiment to see how you can change the one that traveled farthest to make it go even farther. Why does the change you make cause it to go farther?

Link: <http://www.sciencefun.org/kidszone/experiments/paper-hovercrafts/>



MATH

You feed one colony of 5 collared lemurs and one colony of twice as many ring-tailed lemurs. All lemurs receive the same lunch.

You prepare 24 bananas, 48 thistles, and 100 poplar leaves.

- What does each lemur eat?
- What does each colony eat?

Only use whole pieces of food. Each lemur needs at least one of each food. With the remainder, how many more lemurs could you feed? See links below.

Link: <https://tinyurl.com/ybht3hxj>



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Lab 2 • Exploration

Works Cited and Answers

Answers

Math K-1 Solution:

Scores will vary. When discussing if it is easier or harder to pull doubles with 1-5 or 1-10, you can talk with your student about the chance of getting doubles - higher with only 5 numbers in each container - and the higher scores - you could score 20 if you pull 2 10s or 10 if you pull two 5s. You also have a greater chance in each game of having to subtract compared to when you add, with larger integers in the second round. In each game, you will likely see different interactions between probability and score.

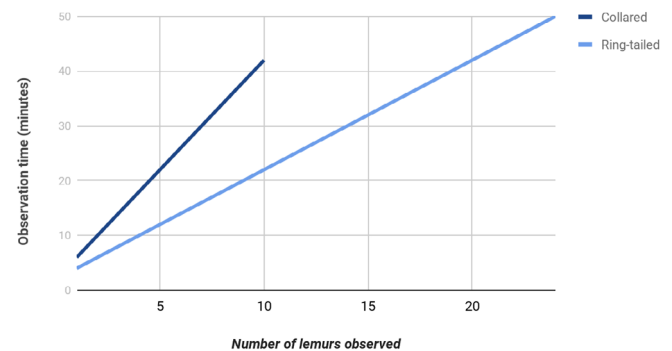
Math 2-3 Solution:

Ring-tailed lemur colony: 10 lemurs. Each lemur eats: 1 carrot, 3 broccoli stems, 6 poplar leaves. Ring-tailed colony eats: 10 bananas, 30 thistles, 60 poplar leaves. Collared lemur colony eats: 5 bananas, 15 thistles, 30 poplar leaves. Leftovers: 9 bananas, 3 thistles, 10 poplar leaves. With leftovers, you could feed 1 more lemur since you need 3 thistles per lemur.

Math 4-5 Solution:

If you spend 35 minutes with each colony, you observe 8 CL or 16 RT. If all lemurs are present, you spend 92 minutes (1 hour, 32 minutes) observing. If you spend the same time observing, you see twice as many ring-tailed lemurs as collared lemurs ($RT = 2 \times CL$).

Lemur Center Observation Times



References

Math K-1 activity is adapted from “Double Down” in “7 Games for Practicing Math Facts” at <https://www.scholastic.com/teachers/articles/teaching-content/7-games-practice-math-facts/>

Math 2-3 & 4-5 links:

- Lemur diet information from <https://lemur.duke.edu/discover/meet-the-lemurs/>
- Lemur colony information from <https://lemur.duke.edu/discover/meet-the-lemurs/>
- Ring-Tailed Lemur: <https://lemur.duke.edu/discover/meet-the-lemurs/ring-tailed-lemur/>
- Red Collared Lemur: <https://lemur.duke.edu/discover/meet-the-lemurs/red-collared-lemur/>

Math 6-7 link:

- Random Number Generator: <https://www.calculator.net/random-number-generator.html>

Math 8-9 activity is adapted from “Comparing Linear, Quadratic & Exponential Models” at <https://study.com/academy/lesson/comparing-linear-quadratic-exponential-models.html>

Math 10-12 links:

- 2017 World Happiness Report: <https://www.youtube.com/watch?v=Se2gfFKp1lw>
- Weighted Averages Example: <https://drive.google.com/file/d/1JCDvFsd4dLeMbRkHyTEFYsdlWWtRXu9/view>
- Gapminder Indicator Selector: <https://www.gapminder.org/data/>
- See the “Happiness” Full Lesson Plan for other guiding questions and examples: <https://blogs.tip.duke.edu/teachersworkshop/how-do-we-quantify-happiness/>