ADVANCED LEARNING LABS

A partnership between the North Carolina Department of Public Instruction and Duke TIP

TO ENGAGE, ACTIVATE, AND GROW OUR STUDENTS

GRADES K–1

Lab 2 • Exploration

ELA

An "Origin Story" is a made-up story that explains why something is the way it is (why a tiger has stripes or why a snake has no legs, for example). Think about something that interests you. Explore your imagination- think about its origin.

Using a combination of drawing, and writing, come up with your own story about why something is the way it is.

Share it with a friend or act it out for a family member.

SOCIAL STUDIES

Inventions give us new ways of doing things. Draw a picture that shows the five most important inventions you can think of that have changed people's lives.

These inventions could affect travel, health, communication, or anything else people have or do. You can also show what the invention first looked like and how it has changed over time.

Discuss these inventions with a friend or family member. Explore their ideas of the most important inventions.

SCIENCE

Exploring Magnetism!

Find 2-3 things in your kitchen that a magnet sticks to and find 2-3 things in your kitchen that the magnet will not stick to.

- How are the objects of each group similar?
- What makes the 2 groups of objects different?

Make a list of three facts about magnets with a family member.

MINDFULNESS

Let's blow bubbles!

While blowing bubbles, focus on taking deep, slow breaths, and exhaling slowly to fill each bubble.

Notice the bubbles. Relax, breathe slowly, and watch the bubbles float away. What are the different things you notice about the bubbles?

Draw and color a picture of your bubbles and share it with a friend or family member.

Look at the link below to make your own bubbles.

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

LOGIC PUZZLE

Favorite Subject

From Shakespeare to Newton to Galileo, everyone has a favorite subject. Use the grid puzzle and the clues you are given to figure out each student's favorite subject.

Link: https://bit.ly/2KL4fNy

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? What differences did you notice between the land on Mars and our land on Earth? What do you wonder about the planet Mars?

Share what you notice and wonder with a friend or family member.

RESEARCH EXPLORATIONS

Engineers experiment with different materials to find what works best for any given 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. Second, make the hovercraft out of each of the four materials. Test them to see which hovercraft travels the farthest.

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

MATH

Let's explore numbers by playing a number game! Write numbers 1 to 5 on small papers. Place in a container.

Create a second set of numbers, 1 to 5, in a different container. Pull one number from each container. If the numbers match, add them. If the numbers don't match, subtract them.

Write down the number sentence and your total (for example, 3+3=6 or 5-2=3). Put the numbers back. Pull again. Repeat 10 times. Add the totals to find your score.

Add numbers 6 to 10 to the containers. Play again. Which total score from the two matches was higher? Why? Explain your results.

North Carolina Department of PUBLIC INSTRUCTION

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Lab 2 • Exploration

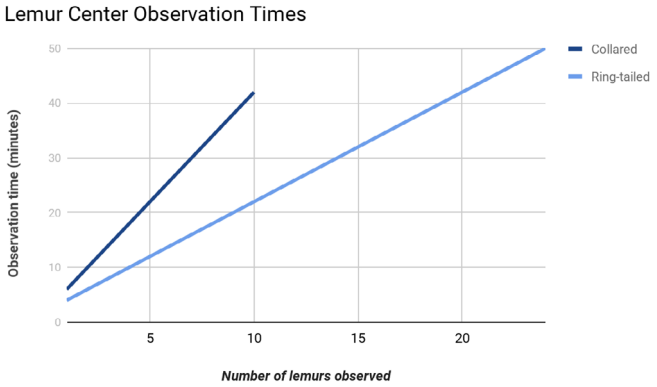
Works Cited and Answers

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 x CL).



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=Se2gfFKp1Iw
- Weighted Averages Example: https://drive.google.com/file/d/1JCDvFsda4dLeMbRkHyTEFYSdLWWtRXu9/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/