

Santa Rosa Academy

Student Name:

Science: Leprechaun Trap, Engineering Challenge

Grade: LP: 8

Assignment Dates: 3/6/17 - 3/10/17

Next Generation Science Standards

Engineering Design

- **K-2-ETS1-1** *Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.*
- **K-2-ETS1-2** *Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.*
- **K-2-ETS1-3** *Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.*
- **3-5-ETS1-1** *Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.*
- **3-5-ETS1-2** *Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.*
- **3-5-ETS1-3** *Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.*

Materials:

- Variety of found materials (outdoor or craft)
- Cardboard and paper scraps
- Scissors, tape, and glue
- Popsicle Sticks, straws, paper towel or toilet paper rolls, fabric, shoeboxes, construction paper, etc.
- Anything else you can think of, be creative!

Set-Up:

Students will need to select one leprechaun to color and cut out. The leprechaun must fit inside their trap design. The page does suggest to copy onto cardstock

but is not necessary. Students will need a flat surface to work on. Grades K-2 may need more parental support.

Goal: Students will construct a trap for a leprechaun cut-out and demonstrate how it works.

Challenge Rules:

- The trap must be constructed on a flat surface.
- Your goal is to build a trap for catching a leprechaun. It must also hold a leprechaun!
- You must demonstrate how your trap will work once it is completed!
- There are many different ways to complete this challenge. Be Creative!

Directions:

1. Read the story, "The Night Before St. Patrick's Day" by Natasha Wing. If you do not have this book you can watch and hear it on youtube:
<https://youtu.be/PIJYAKzFwfE>
2. Read the challenge rules together!
3. Analyze and discuss with your child how you can build your own leprechaun trap.
4. Have fun engineering your Leprechaun Trap! Remember: it is okay to fail along the way. Fail Forward! Mistakes are proof that you are learning and trying! Persevere! Some children may prefer to draw their plans first or some children may wish to immediately start playing with the materials.
5. Parents as the facilitator, you are there to ask questions, prompt creative thinking and help when needed. It is important to let your child do the thinking and building. As hard as it may be try not to suggestion solutions for your child. Please keep in mind that K-2 students may need help and it is okay to help them. If you know they can do it on their own, allow them to!
6. Test out the trap! Many times children like to revisit a project after a period of time. Leave out their traps as they continue to work on them over several days. Encourage your student to modify their trap if necessary.
7. Complete the student Lab Sheet: Leprechaun Trap Challenge.
8. Turn in the Lab Sheet to your EA as this is your science sample for the week.
9. Optional: Email a picture of your trap to your EA.

Student Lab Sheet: Leprechaun Trap Challenge

Name _____

Were you successful in this challenge? Why or why not?

What was the most difficult part of this challenge? Why?

What was the best idea you came up with during this challenge?

My Questions:

Did your leprechaun trap work? Why or why not? Did the leprechaun fit inside your trap?

What did you learn about construction and engineering during this challenge?

Sketch your solution on the back of the sheet.