WILD ADVENTURES SWAMP THING

Arrow of Light Elective Adventure: Engineering

This guide will help your Scout group prepare to complete the “Engineering” Adventure Loop requirements for Arrow of Light at the Wild Adventures theme park utilizing primarily the Swamp Thing roller coaster.

Arrow of Light “Engineer” Adventure Requirements

1. Learn the focus, related sciences, and products of civil, electrical, and mechanical engineers.
2. Pick one of the engineering fields from requirement 1 to complete the following requirements.
3. Examine a set of blueprints or specifications used by your choice of engineer.
4. Identify a project that you would like to build.
5. Using the engineering process, build your project.

The Requirements (To be completed prior to, during or after a visit to Wild Adventures):

1. Learn the focus, related sciences, and products of civil, electrical, and mechanical engineers.
    - Find YouTube videos about roller coaster engineering. Recommendation of videos or channels that would have mechanical, civil and electrical aspects would include:
        - Roller Coaster Engineering (https://www.youtube.com/watch?v=jMsF4juzQ-4)
        - Roller Coaster Engineer Interview (www.youtube.com/watch?v=ZAv7DaGiF-Q)
        - What Controls a Ride (https://www.youtube.com/watch?v=OefB45MGhpE)
        - ElToroRyan (https://www.youtube.com/watch?v=jSyz_U79iQ0)
        - Ryan the Ride Mechanic
    - If possible talk to a local engineer about their job (optional)

2. Discuss and pick one of the engineering fields to complete the remaining requirements
    - For a trip to Wild Adventures we’d recommend mechanical

3.Examine blueprints or specifications used by your choice of engineer (see appendix).
    - Examine the Vekoma patent for the “Amusement Device” for a suspended train similar to Swamp Thing at Wild Adventures.

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- Examine the Universal patent for the “boom coaster” Donkey Kong Mine Cart Madness at Epic Universe.
    - How is this setup different from the Swamp Thing?
    - What is one advantage and disadvantage of each type of setup?

4. Build a project using the engineering process
- After your visit, build your own paper roller coaster! Create a plan/blueprint and then build it using scissors, tape, cardboard, cardstock and marbles.
    - Use cardboard to create a base and cardstock to create square tube “u-shaped” track and square support struts. Strategic cuts, bends and tape will allow curves. Further instructions are found in the Arrow of Light handbook
- Alternatively, a planning worksheet is included here to build a coaster using foam pool noodle “u-shaped” track with marbles that would also satisfy the requirement.

Notes and Options:

These activities could be completed during the park’s annual scout weekend or during any other day when Wild Adventures is open. Scouts do not need to ride the coaster to complete the adventure, however we’d highly recommend it. After riding, possible discussion topics include:

- What was your favorite part of the ride and why?
- What are potential and kinetic energy? Where in the ride do you have the most of each?
- Roller coasters do not run the same speed every time, what factors cause the variation?
- What is a g-force? Did you feel positive, negative or lateral g’s on the ride? Why?

Note that while Swamp Thing is a family coaster, it is still a moderately intense thrill ride that may be intimidating for some riders. Outpost Express may be an alternative roller coaster for scouts wanting a milder ride.

It is totally possible for scouts to complete this activity on their own with no official involvement of Wild Adventures. However, the park offers group packages and an annual Scouting America Adventure Weekend **https://www.wildadventures.com/groups/scout-events/boy-scouts/**.
Please contact the park’s group sales department for more information at (229) 219-7080.

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