

Designing Solutions Activity

#1: Rope Tube

General Objective: To provide an opportunity for students to design solutions in science based on observing a phenomenon and asking questions.

The facilitator does the following:

1. Once students have seen the Rope Tube phenomenon ([Rope Tube Podcast](#), requires [Adobe Flash](#)) and asked questions, have them design a solution to the phenomenon based on the created model. Students should be able to design a solution that replicates the observed phenomenon of the Rope Tube.
2. Have students generate a list of needed materials and either provide the materials or have students gather the materials.
3. Provide time for students to design solutions using the [Engineering Design Process sheet](#) (PDF format).

Related Crosscutting Concepts:

- [Patterns](#)
- [Cause & Effect](#)
- [Systems & System Models](#)
- [Structure & Function](#)

Related Disciplinary Core Ideas:

- [Core Idea PS1: Matter and Its Interactions](#)
 - [PS1.A: Structure and Properties of Matter](#)
- [Core Idea PS2: Motion and Stability: Forces and Interactions](#)
 - [PS2.A: Forces and Motion](#)
 - [PS2.B: Types of Interactions](#)
- [Core Idea ETS1: Engineering Design](#)

- [ETS1.A: Defining and Delimiting an Engineering Problem](#)
- [ETS1.B: Developing Possible Solutions](#)
- [ETS1.C: Optimizing the Design Solution](#)