



# 17. Standing waves

**Opponent:**

Team Romania - Limitless

**Reporter:**

Team Iran - Innovative Researchers

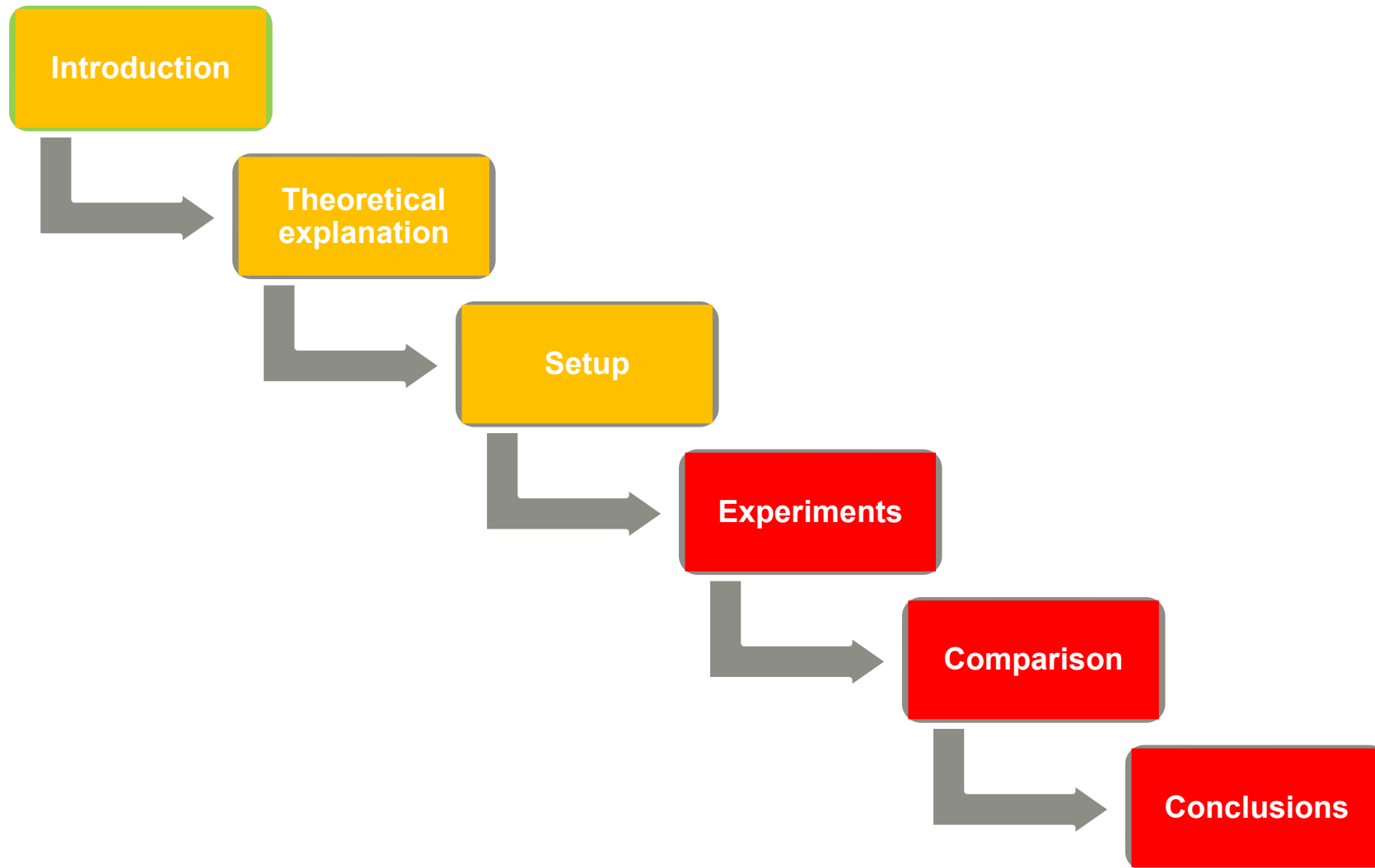
# Task of the problem

Formulate a problem about an interesting experiment where standing waves are observed.

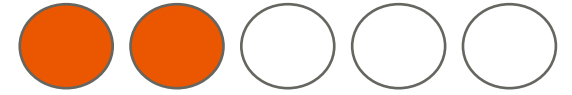
Proposed problem:

Why are standing waves produce? Measuring the volume of the sound. Effective parameter such as frequency and wavelength. Standing waves definition. Waves are a vibration or oscillation that transmits energies. The main characteristics of a wave.

# Outline of the reporter



# Theoretical part



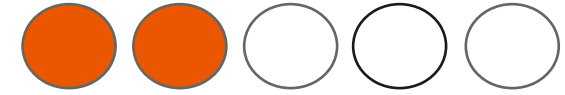
## Strong points

- Properties of a standing waves are presented, but poorly
- Presence of nodes and antinodes

## Weak points

- Didn't talk about how standing waves are formed (no mention of travelling waves)
- Interference is not presented (relevant to the topic)
- Properties are not clearly detailed
- Lack of mathematical model
- Properties of frequency weren't detailed (wavelength, frequency)

# Experimental part



## Strong points

- Experimental setup was clearly presented.
- Has a well working setup.

## Weak points

- Quantitative data was presented, but no explanation of the results (frequency of 700 Hz)
- For experiment 2, no video was shown to illustrate the standing waves.
- Only 2 experiment are not enough ( not enough material to prove the theory ).
- There are no results for the experiments.
- Human error for moving the rope in experiment nr. 1
- Possible errors are missing.
- No hypotheses were drawn.

# Discussion topics

- Why are travelling waves relevant?
- How did you know the applied frequency to the rope?
- How many times each experiment? Difference in movement of the rope for experiment number 1.
- Properties of the rope
- Mathematical model
- Perfect Harmonics - missing