12 Nov' 2024

→ Presenting at a science fair on 13 Nov '24 at Central Georgia Homeschool Science Fair

→ Some example projects we can present based on what we learnt so far:

(1) Waves & Music — using programming

(2) Scientific method to understand how the Sun rises and sets

(3) How we use AI in our classroom — where is it good or not

(4) Phonetic sounds & Chandassu (prosody)

→ Project we selected for tomorrow

— Waves & Music

→ Waves : Definition & example - water waves

Properties of waves : we will use images from our python code and show 2D & 1D images for small and large values for amplitude, wavelength, attenuation, frequency — velocity we can't show in poster, so we will show on laptop ; $V = \lambda \times \nu$

Music : show Flute & Piano (on tablet)

Show images with how wavelength

changes on flute as we close some holes — And how diff. properties like λ, ϱ, v, f, A control musical sounds.

How we did this: We used AI & python libraries — to create functions for waves and to produce sound from musical notes

def generateWaves(params)
...

def generateMusic(notes)
...

return

return

On the table we have poster, flute, piano/harmonium (tablet) and laptop showing diff. velocity waves & play music from notes

Scientific method:

(1) Question: How do waves work & their relation to musical sound?

(2) Experiment: Modeling (on computer)

(3) Data collection: With model - change amplitude, v, etc.

(4) Test: On flute, we increase 'A' and see how sound changes

(5) Conclusion: What did we learn

How to present:

→(1) Be confident and bold (don't be shy (left sided) don't be arrogant (right sided)

→(2) Describe everything in a way everyone can understand even if they don't know anything about your project before

→ (3) Present everything quickly but nicely
→ (4) Practice your presentation for several times
(5) Describe everything in your own words (don't just read what's on the poster).

HW: (1) Make the poster, tablet (piano/harmonium, flute (check C&F#), laptop (velocity changes, play music notes) ready
(2) Practice presenting your project as a story and answering any questions