

Some Fun Pedagogical Techniques to Teach Optics to Students of All Ages

Amit Garg*, Prince Sharma¹, Prahlad Prajapat¹, Anurag Saxena¹, Pushkar Pandey², Aman Tyagi¹, Yash Varshney¹ and Aditi Sharma¹

¹Department of Electronics, Acharya Narendra Dev College, University of Delhi, New Delhi-19, India
²Department of Mathematics, Acharya Narendra Dev College, University of Delhi, New Delhi-19, India



INTRODUCTION

A critically responsive pedagogy invites involvement, and, can be realized by utilizing a conceptual framework into which is incorporated experience, critical thinking, and reflective action. We acquire life time skills by gaining knowledge through applications and working of things. Using innovative methods to attract young minds, tutors not only able to cross this barrier but also garner the student's interests.

DIFFERENCE BETWEEN ORTHODOXIAL METHOD AND FUN PEDAGOGY

Traditional Method

- Theory
- Mathematical Model
- Analysis
- Observation
- Reasoning
- Fun Pedagogy

New Approach

- Pre-Test
- Groups
- Activities
- Video Activities
- Submission
- Post-Test

Ensuring the growth of every child. In this process, mentors play an important role. This method of teaching is beneficial in the long run; it develops a scientific temperament in the students. This technique makes the students think in the same way as a scientist and researcher does.

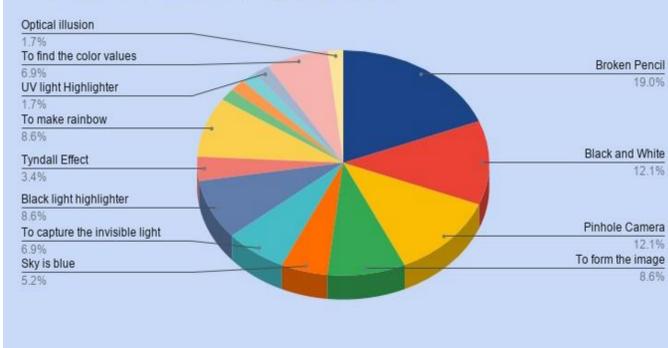
METHODS

PRE – TEST	POST - TEST
This aimed to check the current level of knowledge in Optics and Photonics	For evaluating the learning and concept understanding of the students.
No Marking	Marking was given on the basis of performance.
There was flexibility of choosing the topics that they already knew. Some basic general questions on the optics concept.	Questions were based on their performed activities.
Pre-Test was same for all the students.	Post - test was designed uniquely for each students.

Communication Methods with Students

- Virtual Meeting / Webinar
- Uploading Video Lectures on YouTube
- Easy reach on WhatsApp
- Doubt Sessions
- Fun Activities

Practical chosen by students

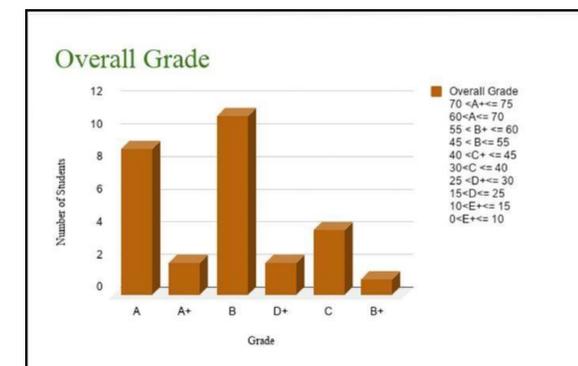
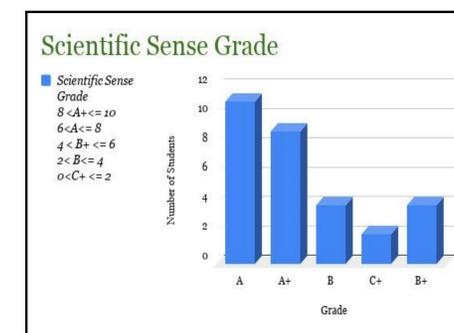
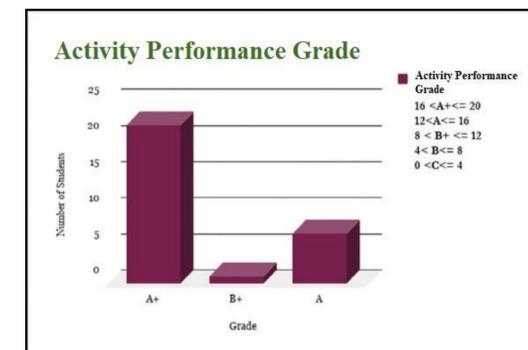


SPIE. STUDENT CHAPTER				
Name	Roll No.	Section	Date	Time
Video Submission				
Practical Name	Practical No.	Practical Date	Practical Time	Test Marks (out of 10)
Practical Submission				
Practical Name	Practical No.	Practical Date	Practical Time	Test Marks (out of 10)
Post-Test				
Name	Video Submission (out of 10)	Practical Submission (out of 10)	Post-Test (out of 10)	Total Marks (out of 30)

Marking Scheme

Various tasks to students are provided based on their school standards and complexity. Tasks were based on the topics that students selected and can be performed at home

RESULTS



CONCLUSIONS

Video submitted by the students showed great enthusiasm and zeal to participate and learn new things. As evaluated by the video submitted by students it can be concluded that most of the students were able to grab the concepts but being kids could not express well in online test.

REFERENCES

- https://www.exploratorium.edu/science_explorer/reflecting_rainbows
- https://youtu.be/PCO_4qL7aos
- <https://youtu.be/Fm9PM6qrV9M>
- <https://www.rookieparenting.com/make-your-own-rainbow-science-experiment/>
- <https://www.toppr.com/guides/physics/human-eye-and-the-colorful-world/refraction-and-dispersion-of-light/>