

# ***MAKING PHYSICS***

## ***PHUN***

**Madhuri Bapat**

Eastern Arizona College  
Thatcher, AZ 85552

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University of Minnesota, Minneapolis.

# Phun?

# Party?

- **Yes, Intellectual phun!**      **Sure! for your brain!**



# Teaching Tools

- **Sensor Technology-let them play with the toys a little bit.**
- **Paul Hewitt and Alan Van Heuvelen-Worksheets.**
- **Use movies, TV shows, cartoons, You tube and personal videos.**
- **Analogies-humanize physics.**
- **Cool Demonstrations.**



# Phun Labs

- Ice cream lab-they make it and eat it too.
- Physics of musical instruments-have small concert-let them show off their talents.
- Physics of playground equipment.
- Physics of cooking.



# Phun Projects

- **Roller coaster loop**
- **Newton's cradle**
- **Base ball pitching machine**
- **Carom board**



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# Physics Club

- **Field trip-MGOT.**
- **Out reach activity as a service project.**
- **Tail gate party-Everything is relative!**
- **Fund raiser activity-Food cookout.**
- **TBBT fan club**
- **Bezinga!!**



# Rocketry Class

- **Beginning-an easy A**
- **Advanced-builds employable skills**
- **Tee Shirts**



# Outreach Activity

- Demonstrations in junior high school.
- Demonstrations at county fair.
- For children in Science City program.
- Hands on physics day for community, boy scouts.



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# Undergraduate Research

- **Summer internships at National labs.**
- **Presentations at conference in Houston, Texas.**



# Robotics Class



# Assessment

- **Open book, open notes tests-test on application and problem solving skills and not memory-take pressure off their shoulders.**
- **Group quizzes-let them talk, discuss, verbalize, peer tutor.**
- **Paul Hewitt Questions-get them confused a little.**
- **Ranking exercises-critical thinking, tease their brains.**

# Awards

- **Outstanding student in College physics class.**
- **Outstanding student in University physics class.**
- **Outstanding female student majoring in physics.**



# Give Them Exposure

- Have a show/display case in the hallway with fun things filled in it.
- Display their pictures, awards, rockets in the show/display case.
- Get them in the Newspaper.



# Some Key Points

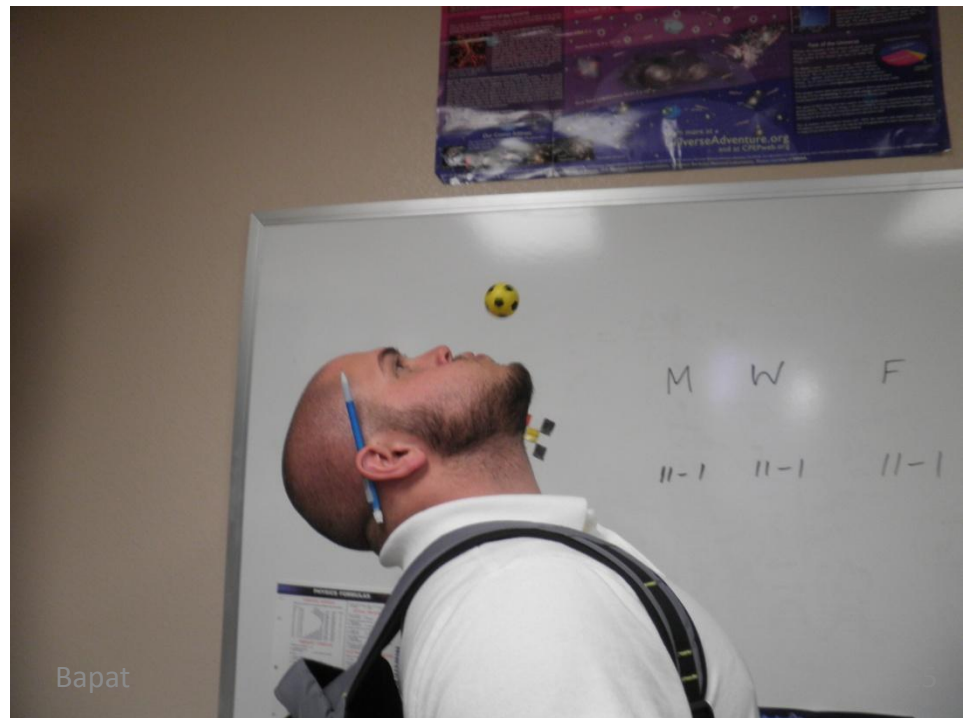
- Have no rigid agenda. Be flexible-sky is not going fall or it's not end of the world attitude.
- Ride on their wave. Less is more.
- Be spontaneous! Unpredictable!
- Let your enthusiasm/passion rub on them.
- **Look at physics through their glasses-This is very important for conceptual physics class.**
- Loosen up, be a little crazy at times!
- Don't expect everything to happen all the times.
- Offer Free Food!

# Make use of Quotes!

- Everything is physics!
- It's not magic, it is physics!
- Physics is a party for your brain!



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# A BIG THANK YOU!

- AAPT
- EAC
- And All of You!

