Everything YOU wanted to know about Teaching High School Astronomy

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Limited Lab Space?

• Most astronomy labs don’t need:
  ○ Water
  ○ Chemistry hoods
  ○ Extensive use of computers

• Most astronomy labs do need:
  ○ Table space
  ○ Normal access to electrical outlets
  ○ Occasional: a way to darken the room
  ○ Projection system (for those wonderful visuals)
Equipment

- You already have some equipment for astronomy in your physics or chemistry supplies
  - Lenses
  - Mirrors
  - Rulers/meter sticks
  - Gas emission tubes/diffraction gratings
Equipment

- **New supplies**
  - Polystyrene spheres (for phases)
  - Solar motion demonstrators (for seasons)
  - Celestial sphere with horizon ring (one for demonstration)

- **Very few consumables are needed, and are often common supplies**
  - Play-doh
  - Foam-core boards
  - String
Do I need a telescope?

- Probably, yes. But, you don’t need one for each student.

- Dr. Hemenway’s recommendation:
  - One larger telescope for special star parties
    - Estimated cost for 8-inch “go-to” scope = $1500
    - Estimated cost for 8-inch Dobsonian = $300-400
    - Estimated cost for 4-inch Astroscan = $200
  - Several smaller telescopes and/or binoculars
    - Galileoscope = $20
    - Binoculars = $30
    - Tripod = $20
But, I can’t meet at night

- At least once a semester – try for a star-party at night (perhaps after a school open house or parent meeting). Invite a local astronomy club to bring telescopes and use yours.
- Use your telescopes during the day to view:
  - Sun (with appropriate safety cautions) or specialized telescope
  - Moon
  - Venus
- Option: Use a remote telescope
OK, I want one. How do I choose a telescope?

- Picking a telescope is like picking out a new car. Consider your potential needs and price range.
- Hints are at: http://stardate.org/nightsky/bguide/view.html
- Important points:
  - Aperture (diameter of lens or mirror) determines light-gathering power
  - Eyepieces determine magnification (get at least two)
  - Use electricity or not.
  - Where will you store it and how heavy is it to move?
### Remote Telescopes

- **Advantages:**
  - Often larger aperture
  - Often backed by professional staff
  - Some daytime access
  - Some “observations by order”
  - Can involve students in real research
  - Processes images that are a permanent record

- **Disadvantages:**
  - Require good computer access
  - Require more training for operation
  - Require computers to process the data (images)
Training/Resources

- Workshops at McDonald Observatory
  
  http://mcdonaldobservatory.org/teachers/profdev/

- Webpage for this CAST workshop
  
  http://outreach.as.utexas.edu/marykay/highschool/hs.html
Evaluation

- On one side of the index card write what you will
  - USE
  - SHARE
  - CHANGE

- On the other side, write one sentence about this workshop.