



# **Swift Education Committee**

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October 20, 2003



Swift

Education and  
Public Outreach

# Overview

- **Status Report for FY2003**
- **Action Items from last meeting**
- **Newton's Law reviews by NASA  
OSS Ed**
- **GRB activity status**
- **Discussion**



## FY2003 Status report

- **Materials produced:**
  - **GRB Educator's Guide**
    - second draft now in testing with SSU students
    - [http://swift.sonoma.edu/education/GRB\\_activities\\_introtwo.pdf](http://swift.sonoma.edu/education/GRB_activities_introtwo.pdf)
  - **Swift Model booklet**
    - Ready for review by science team
    - <http://swift.sonoma.edu/education/swmodguide2.pdf>
  - **EM Spectrum poster (with Origins Forum)**
    - Featured GEMS #2, distributed to 40,000 teachers



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## FY2003 Status report

- **Material Supply Status**

- Spin a Spectrum wheels/booklets
  - 150/180 left
- Newton's Law posters
  - 450 left of each but unfolded
- Powers of Ten card sets
  - Gone
- Wave booklets/Slinkies
  - 190/24 left
- GEMS guides
  - 270/2000 remaining
- EM Spectrum posters
  - 120 left to hand out to EAs
- Swift miniplot pads
  - 800 left, but meant for scientists
- Mouse Pads
  - Gone



# FY2003 Status report

- **SwEC Status**

- SSU Meeting in July 2003
  - Presentations on line at [http://swift.sonoma.edu/resources/swift/educa\\_pres/swec\\_03/swec\\_pres03.html](http://swift.sonoma.edu/resources/swift/educa_pres/swec_03/swec_pres03.html)
  - Minutes on line at [http://swift.sonoma.edu/swec/SwEC\\_0703.doc](http://swift.sonoma.edu/swec/SwEC_0703.doc)
- SwEC membership
  - Gould, Runyon no longer attending – remove?
  - Sparks, McEntyre not yet official members – add?
  - Anastasia Pappa new UK representative



## **FY2003 Status report**

- **Swift Educator Ambassador Status**

- Biographies and photos needed for Hemp and Arnold so that we can make web pages similar to these:
  - <http://swift.sonoma.edu/ambassador/ambassadors.html>
- McEntyre and Sparks should check their web biographies and update as needed
- We will most likely be getting a fifth Swift EA – David Beier, who has been our “unofficial” EA for the past year and who has done numerous (mostly GEMS) workshops. He is in Missouri.



## **FY2003 Status report**

- “Official” Swift High School Status
  - We seem to have lost regular contact with C. J. Rodkey who works at the Keystone Oaks High School in Pennsylvania
  - He did not apply to be an EA – missed the deadline
  - We need someone nearby to restart this interface and see what we can do for them and what they would like to do
  - Any volunteers?



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## Action Items

- Find out rules for NASA contests – still in progress by LRC
- See if we can get into “Current Science” – still in progress by Phil Plait
  - Mercury published Plait’s article about Swift in Sept/Oct issue
  - Stardate Magazine is also publishing an article about Swift by Plait
- See if Brokers will find reviewers for us – will not be done
  - WestEd is finding reviewers instead
  - Newton’s Laws focus group having debrief telecon in November 2003
- Look into Association of Astronomy Educators – DONE
- *Find out (Who’s reviewing the material for NASA OSS? Scientists? Educators? (both). Should those reviewing the material be present at the educator workshops? ) - DONE*



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Date: \_\_\_\_\_

**A. Final Panel Recommendation: Major Revisions.**

**Recommended Revisions:**

- Content and editorial revisions need to be addressed. See individual reviews for details.
- Revise to be more directly aligned with NASA, the SWIFT mission, and the SEU forum.
- The experiments are misleading, and not directly related to Newton's laws.
- The velocity vector used should be an acceleration vector.

**Additional Comments:**

- The activities are useful, low cost, and can be used at many levels with many teachers.

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**Comments:**

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**Initial Reviewer Ratings/Recommendations:**

Educators

- Good
- Very Good
- Good
- Outstanding

- Minor Revisions
- Broad Distribution
- Minor Revisions
- Broad Distribution

Scientists

- Good
- Very Good
- Poor

- Teacher Workshops
- Broad Distribution
- Not Recommended

This  
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**Strengths:**

- Some reviewers state that Newton's Laws are the basis of SEU science and therefore are directly relevant.
- This poster is clearly educational in nature, provides current information.
- The experiments are easy to do and demonstrate important principles in fundamental physics.
- Nice, eye-catching poster.
- Simple, straightforward mini-activities that do an excellent job explaining typically confusing issues.
- Provides a nice link to the applications of NASA science and technology
- Graphically appealing and interesting, with solid support material.
- The activities can be easily integrated into physics or physical science curricula.
- The web site was easy to use.
- Good list of references.

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Comments:

**Weaknesses:**

- Some reviewers feel that while the concepts presented are the basis for the science covered by SEU, they are not exclusively linked to SEU.
- The discussion of the Swift satellite does not fit into the posters. The examples are not relevant to Swift's mission.
- Not all units are given in SI.
- Some of the demonstrations used in the activities do not effectively demonstrate the concept desired.
- The instructional material is explained fairly well for a science teacher but may be difficult for a non-expert to interpret.
- Does not provide a tie between everyday life and the applications.

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Comments:

Weaknesses (continued)

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- Poster portrays women and men in stereotypical roles.
- Some references are “.com” which isn’t always a good idea.
- The activities are cluttered and contain too much information for lower level students to separate and interpret.
- While these posters may be useful, there may be other products in distribution that do the same thing.
- There are a number of content and editorial errors that need to be addressed. See individual reviews for details.

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## **Newton's Laws -discussion**

- Posters are very popular with teachers despite OSS Ed review criticism of lack of tie-in with SEU goals
- Could each EA volunteer to critically review one of the 4 units (including gravitational unit, which is not (yet) on a poster) in the light of the NASA OSS Ed reviews?
- Telecon with focus group teachers, led by WestEd on 11/5 at 330 PM PST
- Also Cathy Ringstaff has a detailed review of #1



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# Newton's Laws -discussion

- **Goals would be to:**
  - redo back of posters to fit our instructional design template
  - fix mistakes in units and physics
  - perhaps reuse some but not all of the existing material?
  - or use new material entirely?
- **EA role would be to recommend which activities to keep from each poster (or suggest replacement)**
- **EAs could also help spot mistakes or test out these activities more thoroughly to help with rewrite**



## **GRB Activities revisited**

- **Cosmic Zoo (GRB #1) cards have been simplified**
- **CSTA workshop on GRB #1 was a great success**
- **Awaiting WestEd review from ~40 teachers**
- **GRB #2 (parallel rays) is in pretty good shape, needs minor revisions, has been tested 3 times in the classroom, will be going on the back of poster**
- **GRB#3 (distribution) and #4 (beaming) are being reworked and tested tomorrow in SSU GE class**
- **A new idea for GRB #3: use the students themselves!**





## **GRB #3 Activity revisited**

(adapted from Jeff Adkins from globular cluster- galaxy activity)

You can do this with a group of people, or by yourself if necessary. Have people stand around the edge of the room evenly spread out. Next, have a volunteer stand in the center of the room and point to adjacent people with arms outstretched. Using a video camera here is another way of making the point. Slowly pan from person to person to show that from the center, all of the people are evenly spaced.

Now repeat what you just did, but stand near the edge of the room. You will find that some people (the ones closest to you) are spread far apart compared to the ones most distant across the room. Again, this is most effectively visualized with video tape.



## **GRB #3 Activity revisited**

- In what direction is the spacing most crowded, due to perspective?
- How does this direction compare to the direction towards the center of the room?

Adkins then follows this up with a plotting activity.

We could have the students plot the locations of a bunch of known bursts to see that they do not have a preferred direction, then compare to the distributions for cosmic and galactic distances, in the same coordinate system.