

Free High School Science Texts (FHSST)

Annual Report 2005



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on behalf of the

FHSST Administrative Team

Summary of Project Status

The FHSST project solidified its position as one of the most active and successful volunteer open source textbook projects in the world by maintaining steady progress in content development for a third year. Many people contributed to this progress and we are very grateful for the continued commitment of our volunteers.

The project has also made significant progress towards our objectives of collaboration and the creation of a resource for use by other education initiatives. We have established links with the tuXlab¹, Moodle², Wikibooks³, iKamva⁴ and Teach Out projects. These projects cover the range of possible uses for FHSST content from on-line lessons to printed tutorials.

The project is poised to finish its first book, Physics, and begin the process of trialling content and fund-raising leading up to the distribution of the first textbook.

Volunteers

The project has received a steady flow of volunteers, our most valuable asset, which is the sole reason for the steady progress. The administrative team has tried to streamline the process of coordinating volunteers. We introduced a web form for new volunteers to gather information about volunteers more efficiently.

We have also decided to move future development into a wiki format to reduce the complications for new volunteers. Content will be migrated out of the wiki format for its final editing stage. At this stage we feel that it is best to complete the first three books the way we have been working to date and to pursue future core content development on Wikibooks. We hope that this will improve the experience of contributing to FHSST, which we feel should be a fun way to contribute to a good cause.

We also hope to have administrative team members with more time for FHSST in 2006 to reduce any administrative latency and give volunteers more attention. Part of this will be an investment in making more structured assignments for volunteers.

Content

The period September 2004 to August 2005 has been an active and exciting period for FHSST. The project has continued to produce core

1 <http://www.tuxlab.org.za>

2 <http://moodle.hmo.ac.za>

3 <http://en.wikibooks.org>

4 <http://www.ikamva.kabissa.org>

content for Physics, Chemistry and Mathematics, with Physics nearing completion. In addition, work on Biology and Computer Literacy has commenced. The activities for each book are detailed in *Book Progress*.

Funding

We received our registration as an non-profit organisation (NPO). NPO registration is prerequisite amongst most organisations for funding applications.

The project has not yet raised any money. The feeling amongst the administrative team is that raising money prematurely will be detrimental to the project. With the end of Physics in sight and Mathematics and Chemistry likely to be finished during 2006 we feel that it is now time to begin fund-raising activities and this will form a major part of our 2006 plan.

The constitution calls for a full set of financial statements to accompany this document. As we have yet to begin any fund-raising activities, have no assets, no bank account, no employees and have received no donations whatsoever we feel that this is inappropriate. The project is still purely a virtual collaboration with all potential expenses like hosting and server space provided free by Savannah⁵.

Other Activities

Website design:

Andy Wood kindly volunteered to revamp the FHSST website for the new year (2005). The new site presents a professional appearance to prospective volunteers and sponsors.

Collaborative activities:

A large portion of Physics content was migrated onto Wikibooks with the help of the Shuttleworth Foundation (TSF). This is a great proof-of-concept and required that we develop tools for converting LaTeX formatted content directly into wiki formatted content. This required some work combining existing tools and help from the LaTeX2HTML project but is now possible efficiently and correctly. The ultimate goal is to make content available in the tuXlabs that have been built by TSF.

We were contacted by a representative of the Hermanus Magnetic Observatory regarding the use of FHSST content as part of their Moodle project. This reinforces the usefulness and impact of the FHSST project, demonstrating that the provision of a resource will enhance the activities of other education initiatives.

⁵<http://savannah.gnu.org>

The iKamva project also contacted FHSST about using our content in their tutoring sessions and providing us with feedback from students and tutors. This will be a major part of our plan for 2006.

Publicity:

We were invited to send a representative to the Access to Learning Materials in Southern Africa Conference which was held in Johannesburg on the 24th and 25th of January. Rory Adams attended as a representative of the project⁶. His report was that many people found the project interesting and were generally supportive. A number of people were surprised by the free nature of the license.

Another successful representation of FHSST took place at the SASOL Grahamstown Science Festival⁷, where Kevin Govender and Ismail Akhalwaya erected a small stand and distributed pamphlets while spreading the word about the project. A large number of teachers expressed interest in the books and we were offered a radio interview whenever we were ready. Unfortunately we haven't had time to take advantage of this offer but will do so in the coming months as part of renewed recruiting and publicity efforts.

Content development:

The project received a boost when Tony R. Kuphaldt released content from his series of books, Lessons in Electric Circuits, for use in our books under the Gnu Free Documentation License. Through the efforts of Sanya Rajani, G. Donald Allen released content from his series of books, Lectures on the History of Mathematics, to FHSST for use in our books. This is a great achievement as one of our objectives is to enhance collaboration amongst education initiatives and setting precedences for content sharing is a big step towards that goal.

Book Progress

The general progress on all books has been steady, see Figure 1. Both Chemistry and Mathematics were restructured, to better adhere to the syllabus, during 2005. Physics is nearing completion with every missing section assigned to a volunteer.

⁶<http://www.nongnu.org/fhsst/ALMSAConference.pdf>

⁷<http://www.scifest.org.za/>

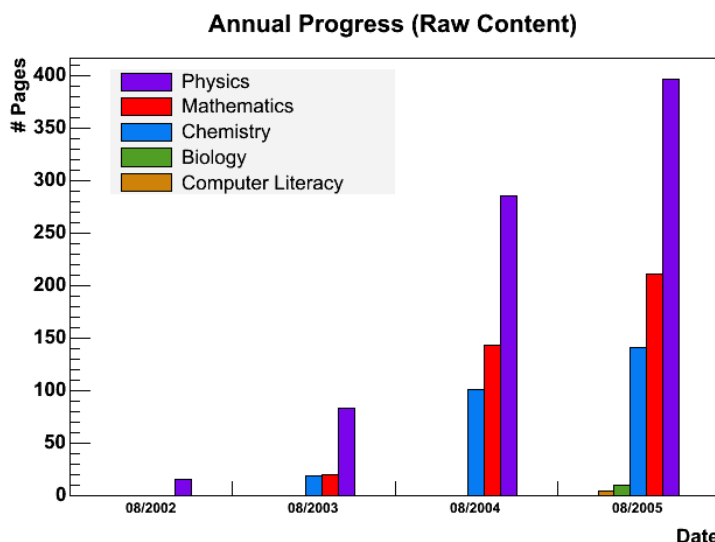


Figure 1: Here we plot the number of pages per book as a function of year. Mathematics and Chemistry were started in 2003 and Biology and Computer Literacy were initiated in 2005.

Physics Report by Mark Horner (Coordinator)

The Physics book has 21 volunteers, with 8 currently active. Physics currently stands at 390+ pages with the assignments for the active volunteers covering all the missing content for Physics. The core content for Physics is expected to be complete before the end of 2005.

The layout of Physics includes all the content listed in the South African syllabus document for grades 10 - 12 with a number of additional sections. All additional sections will be labeled as optional. Once all the core content is complete we will turn our attention to collecting essays and experiments for each chapter. The essays and experiments will cover all of the context, team work and outcomes-based aspects outlined in the syllabus document.

The essays will also be a medium for responsible messages about how science should be used and how it has much farther reaching impact than one might naively expect.

There are only 4 chapters in Physics, out of 18, which are not more than 90% complete. These chapters are Optics, Heat and Properties of Matter, Electronics and Modern Physics. Six chapters are ready for testing in a classroom.

Mathematics Report by Sam Halliday (Coordinator)

The mathematics book currently has 25 contributors, about 5 actively editing and writing new sections at any time. Our authors have varied backgrounds including undergraduate and postgraduate students, high school teachers and even a few

passionate (and gifted) high school students.

When a volunteer expresses an interest in writing or editing, they are quickly assigned a chapter or section to work on, and a deadline. The deadline is essential as it allows for reassigning of sections when a volunteer has not been able to dedicate as much time as they had expected to FHSST.

We used the South African "Outcomes Based" syllabus (from 2004) to create a book structured to allow reading from start to finish without prior knowledge of any section. It is hoped that readers will have at least a grade 9 level education in mathematics, but the first chapter is dedicated to a brushing up of the basics. Authors are supplied with this year's mathematics syllabus to ensure that we are up to date.

Out of the 10 chapters, 3 are nearly completed (Numbers, Patterns, Differentiation). Another 3 require only edits of existing material (Functions, Trigonometry, Finance) and the rest require the material to be written (Numerics, Geometry, Solving, Data). We would therefore estimate the book's current status as about 35% complete with the level of consistent contributions increasing each month.

We would like to be finished by the end of 2006.

Chemistry Report by Sarah Blyth (Coordinator)

The Chemistry book this year underwent a restructuring to fully adhere to the new South African physical science curriculum. The book outline now covers the full new Chemistry syllabus from Grades 10 – 12 as well as some extra chapters from the previous syllabus, which will be labeled optional.

Historically, it has been difficult to find Chemistry volunteers, but recently, through international news groups, more volunteers have been recruited. Currently, the Chemistry book has nine active contributors.

Out of the syllabus-required 21 chapters in the book, 5 are ready for editing (Atomic Combinations, Atomic Nuclei, Representing Chemical Change, Reaction Rates and Electrochemical Reactions), and a further 10 are currently being worked on. Only 4 chapters have no content and no one assigned to work on them. However, these are mostly new sections of the syllabus which have a large overlap with biology or geography. These chapters need a specific South African focus and therefore require South African volunteers which have so far been difficult to source for Chemistry content writing. This is a challenge we need to address in the coming year.

There is currently one essay covering the chemical industry in South Africa and another is in the pipeline.

At this stage, 25% of the Chemistry content is ready for editing, and a further 50% is actively being written. We still need to find more volunteers to develop the outstanding content but are aiming for completion by the end of 2006.

Biology Report by Mark Horner (Coordinator)

The Biology text is the first text we are developing on Wikibooks. Coordination is still done via a mailing list as with the other books.

The structure is in place and there are 6 volunteers of which 4 are active. Recruiting for the Biology book has been halted temporarily to allocate more time to the preparation of funding proposals and is set to resume in September 2005.

Biology is in the fortunate position that we have a number of highly qualified volunteers and there is more content on Wikibooks to draw from than for any other subject we are working on.

The next year should see a core group of volunteers develop for Biology and a large amount of content should be available by the end of next year.

Computer Literacy Report by Adele Muzik (Coordinator)

The Computer Literacy book currently has 2 contributors who are on the books but have not commenced work as yet. Adele is currently completing an UKKasi project (SA music festival) in the UK and once the planning and development phase is complete in September 2005, she will be focusing on growing this team. The contributors are also currently learning Open Office which is the software we will base the textbook on. The authors we will be targeting will include undergraduate and postgraduate students, high school teachers and computer professionals. We have contacted the University of Cape Town, University of Port Elizabeth, Rhodes and WITS and will be following up again. We will utilize Mark's contacts at these universities to ensure that we get a bigger response. Adele will also be brainstorming with Mark on how to recruit new members.

We will follow the strategy that exists with Mathematics in that when a volunteer expresses an interest in writing or editing, they will be added to all the mailing lists and have an opportunity to introduce themselves and are then quickly assigned a chapter or section to work on, and a deadline. AND, as mentioned previously, the deadline allows for a reassignment of sections when a volunteer

has not been able to dedicate as much time as they had expected to FHSST.

Mark based the book structure from the South African "Outcomes Based" syllabus (from 2004). Authors will be supplied with the 2005/2006 computer literacy syllabus to ensure that we are up to date.

Watch this space...

Outlook for 2006

In 2006 the general plan is to increase the activity level of the FHSST project, without increasing the load on individual volunteers. We will need to begin fund-raising activities, with one primary use of initial funding being to hire an individual to work on the project at least part-time. This would ensure that there is a reliable contact person for external stakeholders, a single point of contact for collaborating education initiatives, the Department of Education and printing and distribution negotiations.

This person would then be largely responsible for external activities, fund-raising and supporting the administrative team ensuring that any additional load can be handled by the administrative team. We will, through other education initiatives, pilot sections of Physics, Mathematics and Chemistry to get student and teacher feedback and implement what we learn in the books.

By the end of 2006 Physics, Chemistry and Mathematics should be finished, with the content distributed to Wikibooks, tuXlabs and the Moodle project. Printing and distribution of books to schools can begin to ensure that FHSST textbooks are used during the 2007 school year. We plan to begin distribution with schools involved with our collaborator education initiatives to reinforce their impact and build a sound support base for the project.