A Core Partners

A.1 Institutions of Higher Education

A.1.1 Leading Institution: Hampton University

Hampton University Physics Department The Physics Department at Hampton University [8] includes seven major centers which conduct forefront research in areas related to Optics, Plasma, Nuclear and Particle Physics, Atmospheric Science and Medicine. It has a long history of strong involvement among the faculty and staff in the education of young pupils via programs which reach middle schools, undergraduate and graduate students, and teachers.

In recent years, more than a dozen graduate students received their M.S. or Ph.D. from one of those centers. It is important to stress that while about 40% of those students went on to pursue careers at national laboratories or industries, about 60% of those stayed in academia. Among them three are currently high-school physics teachers and two faculty mathematicians at universities (local and non-local). This reflects the commitment of our students to maintain high standards in our national educational system by ensuring proper teaching of scientific materials. Our track record in developing programs (UnIPHY, HUGS, Quark-Net ...) and activities (science shows ...) is a plus in making the Hampton University Physics Department a very strong candidate for implementing programs in local schools.

Hampton University Science Center The newly established Hampton University Science Center (see Appendix E for more information) is primarily operated as a training center for HU education majors and for pure science and mathematics majors who are preparing to become certified to teach. In addition to science and mathematics majors, the Center has an extensive involvement of student volunteers from many other academic disciplines, including nursing, business, psychology, computer science, history, sports management, political science, and physical therapy, to name a few. This participation by non-education oriented students provides an excellent opportunity for these students to obtain first-hand experience with an authentic teaching environment. The authenticity of this experience is a result of the Center's constant contact with preK-12 students and teachers in both on-campus and off-campus settings. On a scheduled basis, the Center provides hands-on science, mathematics, and technology workshops/experiences for students and teachers from local school divisions, as well as for HU students and faculty, and community groups. Some of the formal courses that have been taught at the Science Center include a gradual level seminar in science education, embryology, astronomy, astrobiology, atmospheric dynamics, and science for pre-school teachers, and methods in teaching secondary science. The Center's philosophy of *Science for Everyone* and *Science Everywhere* drives a mission to provide quality science, mathematics, and technology experiences in the spirit of the American Association for the Advancement of Sciences' *Science for All Americans* (SFAA).

The Science Center is especially suited to support the activities presented in this proposal because it serves as an operational base for a variety of education and outreach

component for several departments within the HU School of Science. The Center already has partnerships with many school divisions throughout Virginia. Therefore, the actual in-school implementation aspects of this proposal can be more easily accomplished by verdure of having the HU Science Center server as a major point of contact with the participating institutions of higher learning and public school divisions.

A.1.2 Sub-awards Institutions

The Physics and Mathematics Departments at Norfolk State University [9] will be part of the *KIDS* program, as well as the Physics Departments at North Carolina A&T University [10], Jackson State University [11], and Fisk University [12].

Similar on-campus activities already exist at these institutions. For example, in 1983 the Division of Continuing Education was established at Jackson State University. Prior to that time, Continuing Education was a single department in the School of Education. Today, the Division has six departments and several other units. Among the many services and programs offered through Continuing Education, none were more enthusiastically received by parents than programs that were designed for the youth in the Jackson State University area. The early programs that were offered and designed for youth were labeled *Activity Programs for Children and Youth.* Soon the list of programs for children and youth grew: after school conferences with teachers, counselors, and administrators; on campus luncheons for University personnel, to solicit their input in the structure of youth programs were held; written questionnaires mailed to state and out-of-state institutions of higher learning to gather more data on youth programs; solicited evaluations from parents who had a vested interest in quality programs for their children/youth; etc. Intensive research was also conducted to gather data that would serve as guidelines in developing constructive programs for elementary and high school students. The staff's involvement in conferences (state and national) also served a useful purpose in developing content and directions. Soon the phrase *Kids College* was adopted to describe programs instituted at Jackson State University for children and youth. Nowadays, Jackson State University offers additional extensive pre-college programs [13]: N.Y.S.P., Upward Bound K-12 students, Kids College...

For the particular case of the Physics Department, a close tie exists with the Jackson Public School District (JPSD). In the early 90s, short courses were offered by the department – called *Operation Physics in Mississippi* – partly supported by NSF. JPS and other school districts participated in those workshops. The department continued its K-12 outreach by offering SPICA and HOU workshops for teachers where astronomy was the primary focus. They were sponsored by the Packard Foundation. There was also a summer program for high school juniors and seniors, the Physical Science Institute (PSI), supported through HUGHES AIRCRAFT. Presently, the department offers at least two courses per year for in-service teachers[12], in addition to its science education degree program (MST), which strengthen the close relationship with local school systems.

[12]Science courses are offered for local school teachers as requested by the continuing education department.

A.2 School Districts

A.2.1 Leading District: Isle Of Wight County School District (IWCS)

The role of the Isle Of Wight County School Division is to serve as the environment in which science and mathematics are transformed from academic disciplines to applications which address practical considerations. Students lose a great deal when they fail to perceive the power of the scientific method and mathematics in solving problems. They should be aware that isolation and manipulation of variables can help to identify factors which are causative and those which are not. Applications of this process can easily be found in everyday life. Therefore, knowing to investigate phenomena in a logical orderly fashion, to develop hypotheses based on observation, and to create solutions for practical situations are tools which can help students deal with their environment more effectively.

Beyond the initial grant period, the $KIDS$ program will continue to benefit students because of the teacher training component. Many elementary teachers, for example, have stated that they feel ill-prepared to teach science because of the dissonance between their pre-service education and current national and state standard in science and mathematics. This program will help them develop the competencies they need to lay a strong foundation in mathematics and science which can support more advanced studies in middle and secondary schools. In effect, the training component and the firsthand experiences afforded by participation in scientific inquiry and hands-on mathematics will continue to benefits Isle Of Wight County students.

Because Isle Of Wight County is a relatively rural area and public transportation makes travel outside the area difficult, many students have very limited experiences and low educational aspirations. Students often fail to understand the broad spectrum of career opportunities available to them in scientific and mathematical fields. They have not interacted with scientists and mathematicians, and, thus, do not know about programs of study at colleges and universities. Correspondingly, they are unaware of scholarships and financial assistance that could bring higher education within their grasp. As stated in recent federal legislation, *no child should be left behind* [6], including Isle Of Wight County students. Our nation needs the intelligence, energy, and creativity of all its youth.

Tables 7 and 8 of Appendix G.1 show the Standard Of Learning (SOL) passing rates for Isle Of Wight County from 1998 to 2002 for middle schools and high schools (selected courses). Comparison with the average in the state of Virginia is listed in Table 9. The same data are shown on Figs. 5 and 6.

The middle school students data show an overall decrease in passing the SOL, which started approximately in 2000. This is of serious concern not only for academic excellence (the goal of improving the quality level of the students becoming a serious issue), but also those students are filling the high schools which, in turn, will suffer from high passing rate scores. This can be seen in Algebra I, Geometry and environmental science, which are about 20% below the state average, indicating the primarily concern of this district: mathematics. The newly SOL scores for the Spring 2002 show the very serious situation that this school district faces in mathematics. Table 11 in the same appendix shows the results obtained in algebra I & II. In addition to the very low participation of black students (ratio of 2.37 and 3.28 between white and black students in algebra I and algebra II, respectively), the passing rate is alarming: the weighted mean average shows a passing rate less than 10.64%, with as low as 0% for Black students.

Table 10 of Appendix G.1 lists the 2000-2001 population and SOL scores in science

and mathematics as a function of the school grade for three categories: total, female and minority groups. While on average 98.34% of the students are taking science-related subjects throughout their education, only 41.84% are female students and 36.20% minority students. Although small, this asymmetry is also reflected in the SOL scores, 1.25% and 5.91% below average for female and minority students, respectively. This discrepancy is a direct reflection of the demographic population.

Lastly, as listed in Tables 12 and 14, the percentage of students placed in advanced science classes is 28.06% (total population), 7.03% (females) and 6.61% (minority).

For the current school year 2002-2003 (Table 13), although the ratio between males and females is about 50%, the total population of minority students does not exceed 36.41%. Table 14 in Appendix G.1 shows the student population enrolled in a science oriented advanced course for one of the two high-schools of Isle Of Wight County in the current Fall 2002 school year. For a total population of 1037 students, 17.26% of the students are effectively involved in an advanced course in mathematics or science; among which 7% are from the underrepresented community (i.e., black students)[13].

Finally, the participation of students in extra curricular science activities is very limited (Table 10), only 2.06%. Only the two existing middle schools are involved in out-of-class activities. This Science Fair is a local event and although there is a high rate of participation, the students lack the opportunity of state wide and nation wide exposure.

These data clearly indicate a strong need for programs like $KIDS$ to increase scores in Isle Of Wight County , especially in mathematics.

A.2.2 Sub-awards School Districts

The other identified School Districts who will be involved in $KIDS$ as sub-awards partners are: Norfolk (Virginia), Greensboro (North Carolina), Jackson (Mississippi), and Nashville (Tennessee). They will join $KIDS$ in the second year of the funded program.

[13]The other minority population are either less than 1% or non existent in the data.

B Merit Review Summary

This section summarizes the two review criteria, intellectual merit and broader impact, addressed by the proposed $KIDS$ activity described in this document.

The Intellectual Merit of $KIDS$ lies in the connectivity of several laboratories and pre-existing national programs. The success of implementing efficiently a new program is: (i) the ability of its partners to make a strong link with existing programs so that expertise from multiple sources can be gathered, and (ii) not to *re-invent the wheel*, which for some particular situations and cases will naturally arose. $KIDS$ includes pre-existing programs from all of the HBCUs involved, but also from national laboratories (Jefferson Lab, Brookhaven National Lab, Fermilab) and other institutions of higher educations (Harvard, MIT). In this way, K-12 students and teachers, who will be the primary beneficiary, have the opportunity of being exposed to a variety of science activities to broaden and enriched their knowledges.

The Broader Impact resides in the inclusion of five HBCUs (Hampton University, Norfolk State University, North Carolina A&T University, Fisk University, and Jackson State University). By its nature, $KIDS$ will broaden the participation of underrepresented groups. The undergraduate tutoring assistance as well as the teachers specific activities, are the tools to promoting teaching, training, and learning. As mentioned above, access to national laboratories and various institutions of higher educations enhance the infrastructure for research and education. The web network which allows communication between students and faculty, is another strong component of the $KIDS$ program to ensure interdisciplinary resources sharing.

C Systemic Evaluation of Urban Schools

Data shown below are from the *Raising Standards and Achievement in Urban Schools - Comprehensive Partnerships for Mathematics and Science Achievement (CPMSA)* [4] and the *Survey Results of Urban School: Classroom Practices in Mathematics and Science Report* [7].

School Year	**Mathematics**		**Science**	
	Cohort 93	**Cohort 94**	**Cohort 93**	**Cohort 94**
92-93	7,083	6,025	-	-
93-94	7,818	6,367	3,256	5,848
94-95	8,780	6,859	3,753	5,808
95-96	10,717	7,010	3,967	5,896
96-97	11,087	5,215	4,962	6,597
97-98	10,172	5,088	8,332	7,034

Table 4: Enrollment of Underrepresented Minority Students from 1992 to 1998.

School Level	**Teachers Participation**	
	Mathematics	**Science**
Elementary	93,867 (74%)	
Middle	6,815 (84%)	5,736 (81%)
High	7,000 (78%)	4,981 (63%)
Total	118,399 (75%)	

Table 5: Professional Development for teachers by school level in the school year 1998-1999.

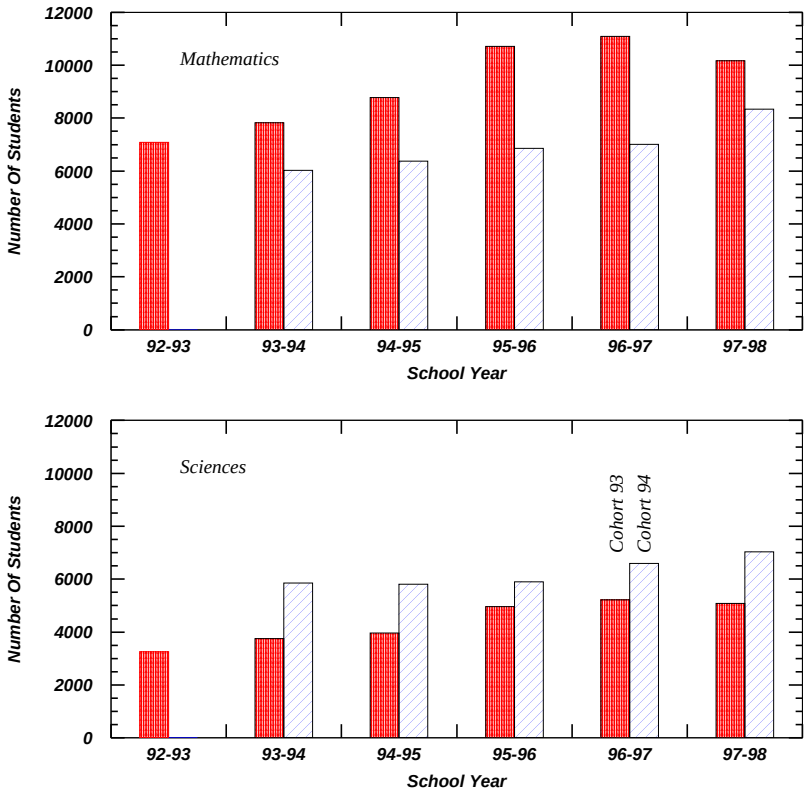

Figure 4: Enrollment of Underrepresented Minority Students from 1992 to 1998 in mathematics (top) and sciences (bottom) for Cohort 93 (dark) and Cohort 94 (light). Extracted from Table 4.

D Collaborators

- **Hampton University**
  - Dr. Guèye, Paul: PI, Physics Department
  - Dr. Uzzle, Alicia: co-PI, Physics Department
  - Dr. Baker, Keith: Physics Department
  - Ms. Blackburn, Cynthia: Mathematics Department
  - Dr. Bowman, Arthur: Biology Department, Director Science Center Biology Department
  - Dr. Cecire, Ken: Physics Department
  - Mr. Druitt, Michael: Biology Department
  - Dr. Ewur, Kewesi: Chemistry Department
  - Dr. Goity, José: Physics Department
  - Dr. Hommerich, Uwe: Physics Department
  - Dr. Keppel, Cynthia: Physics Department
  - Dr. Lyons, Donald: Physics & Engineering Departments
  - Dr. Patrick McCormick: Physics Department
  - Dr. Maung Maung, Khin: Physics Department
  - Dr. Ndip, Grace: Chemistry Department
  - Dr. Rankins, Claudia: Assistant Dean, Physics Department (interim chair)
  - Dr. Russel, James: Physics Department
  - Dr. Seo, Jae Tae: Physics Department
  - Dr. Tabib, Bagheri: Physics Department
  - Dr. Tang, Liguang: Physics Department
  - Dr. Temple, Doyle: Physics Department
  - Dr. Urasa, Isai: Chemistry Department (chair)
- **Norfolk State University**
  - Dr. Agbakpe, Peter: Mathematics Department
  - Dr. Khandaker, Mahbub: Physics Department
- **Fisk University**
  - Dr. Morgan, Steven: Physics Department (chair)
- **Jackson State University**
  - Dr. Karim, Rezwanul: Physics Department (chair)
- **North Carolina A&T University**

  - Dr. Gasparian, Ashot: Physics Department
  - Dr. Danagoulian, Samuel: Physics Department
  - Dr. Ahmidouch, Abdellah: Physics Department
- **Massachusetts Institute of Technology**
  - Dr. Redwine, Robert: Dean of Undergraduate Education
- **Harvard University**
  - Dr. McGrath lewis, Marylin: Director of Admission
- **National Aeronautics and Space Administration/Langley Research Center**
  - Dr. Massenberg, Samuel: Office of Education
- **Isle of Wight County**
  - Ms. Fuller, Elisabeth: Grant Administrator
  - Ms. Jaworowski, Harriet: Coordinator of Instruction
  - Dr. McPherson, Michael W.: Superintendent
  - Ms. Mercer, Rebecca: Executive Director of Educational Services
- **Jefferson Lab**
  - Ms. Tyler, Jan: Education Office Program Manager
- **Fermi National Lab**
  - Ms. Bardeen Marge: Education Office Program Manager
- **Brookhaven National Lab**
  - Dr. Assamagan, Kétévi: Staff Scientist
  - Dr. Harvey, Mark: Scientist
  - Dr. Murphin, Brian: Education Office Director
- **Systemic Research Inc.**
  - Dr. Kim, Jason: Principal Investigator, Evaluator
  - Ms. Crasco, Linda: Project Director, Evaluator

E The Hampton University Science Center

The newly established Hampton University Science Education Center is located on the first floor of Phoenix Hall, occupying just under 3,000 sq.ft. of indoor space and having an adjoining 1,470 sq.ft. outdoor courtyard accessible from one of the Center's model classrooms. The indoor space is distributed amongst three model teaching classrooms (adaptable for pre-K-12 instruction), a pure science research laboratory, a think tank/conference room, lobby with exhibits areas, a main office, and a storage room. Each of the instructional and research areas is wired for access to the Internet, as well as local networking. The three model classrooms and think tank are each equipped with a large screen televisions, a VHS tape players, and laser disc. A transportable 50-inch diameter large screen television is also available for viewings for large audiences. The pure science research laboratory and classroom that is most suitable for high school instruction are both equipped with micro-biological clean benches to allow for work under sterile technique. The research laboratory is also equipped to conduct a variety of cellular and molecular biology projects. On some occasions, the research laboratory has been adapted to serve as a temporary photographic dark-room. All of the areas of the Center are easily adaptable to meet the special needs of a variety of research projects and activities within the physical, life, environmental, and space sciences. Under normal operating conditions, the Center can easily accommodate visitation by school groups ranging in size from 80 to 100 students, depending upon the age of the students. Located several doors down the hall from the Science Center is a recently renovated auditorium which can accommodate approximately 300 persons.

On a continuous basis, the Center maintains a variety of exhibits that include models, live animals and plants, preserved specimens, and a variety of interactive demonstrations. The exhibits provide opportunities for informal learning experiences and the active involvement of students as related to research projects and their becoming familiar with the maintenance of the exhibits. Students of all ages are involved in the design, development/construction, and maintenance of the exhibits. Located throughout the Science Center are resource centers having print and audio visual materials related to a variety of pure science topics and current trends in science, mathematics, and technology education. The associated courtyard allows for a variety of ongoing experiments related to many science disciplines, including ecology, earth and space science, and various physical sciences. A worm box, composing system, weather station are just a few of the standing outdoor active exhibits, what will become a permanent part of this outdoor instructional area. All exhibits and activities are developed in consideration of state and national educational standards and the educational philosophies held by organizations such as the National Science Teachers Association (NSTA), the American Association for the Advancement of Sciences (AAAS), and the National Science Foundation (NSF), to name a few.

At present, there are approximately 15 Macintosh (Mac's) computers and four PCs. Plans are being made to upgrade the current computers and to obtain additional computers. The Science Center's director, Dr. Arthur W. Bowman, has actively participated in the development of this proposal.

F Teaching Science with Toys

Developed through the National Science Foundations Teaching Science with Toys Program at Miami University, this course for K-8 teachers is designed to demonstrate basic principles of physics so that teachers and students alike discover that physics can be fun. Each class session will consist of active involvement in three hands on activities, one at each of three developmental levels, evaluation of each activity and discussion of the scientific background necessary to understand the phenomena observed. All hands on activities are classroom tested, practical, safe, and effective. Time and material requirements, safety and disposal procedures, suggested variations, reproducible sheets and a class set of materials are provided for each teacher. The necessary background of all the basic principles will be taught. All activities will be aligned with the Virginia Standards of Learning and/or local curriculum.

The goals of the $KIDS$ Science with Toys (KST) are:

1. To increase teacher participants' content knowledge of physics
2. To increase the awareness of the importance of hands on activities in the study of physics
3. To increase the ability of teacher participants to critique available hands on activities
4. To increase the ability of teacher participants to develop original classroom activities

Teachers will participate in activities that cover topics including, but not limited to the following:

1. Mechanics
   (a) Kinemetrics
   (b) Statics and dynamics
   (c) Momentum and energy
   (d) Gravity
2. Electromagnetism
   (a) Waves
   (b) Electromagnetism and waves
   (c) Heat and temperature
   (d) Light and optics
   (e) Sound
   (f) Electricity - charge, energy and flow
   (g) Magnetism

Final grades will be determined on a point accumulation basis for evaluation purposes as listed in Table 6. Points will also be offered for graduate credit (see section 3). .

Activity reflection and reports	25%
Attendance and participation	25%
Term project	50%

Table 6: List of points awarded under the $KIDS$ Science with Toys Program.

G IWCS Students and Teachers Data

G.1 Student Participation and Achievement Data

	Mathematics					Science				
Year	1998	1999	2000	2001	2002	1998	1999	2000	2001	2002
Grade 3	55	69	61	81	79	56	68	68	73	74
Grade 5	37	44	59	63	62	52	62	61	70	71
Grade 8	40	50	61	65	61	68	76	78	87	85

Table 7: Passing SOL rates of the middle school students of IWCS from 1998 to 2002.

	Mathematics					Science				
Year	1998	1999	2000	2001	2002	1998	1999	2000	2001	2002
Algebra I	34	48	67	66	54/72					
Algebra II	14	43	40	63	75/85					
Geometry	35	54	52	65	77/66					
Earth Science						62	78	61	76	61/53
Biology						72	84	89	82	82/86
Chemistry						48	75	69	76	88/90

Table 8: Passing SOL rates of the end-of-course high school students of IWCS from 1998 to 2002.

	Mathematics					Science				
Year	1998	1999	2000	2001	2002	1998	1999	2000	2001	2002
Grade 3	63	61	61	65	72	63	68	73	74	78
Grade 5	47	51	63	67	71	59	67	64	75	76
Grade 8	53	60	61	68	71	71	78	82	84	85
Algebra I	40	56	65	74	78					
Algebra II	31	51	58	74	77					
Geometry	52	62	67	73	76					
Earth Science						58	65	70	73	76
Biology						72	81	79	81	83
Chemistry						54	64	64	74	78

Table 9: Average passing SOL rates for the state of Virginia for middle school and high school from 1998 to 2002.

G.2 Teacher Participation and Professional Development Data

Teachers need to help students in applying their skills through projects which can reinforce learning in the classroom. By developing science projects which follow the guidelines of APS, students will understand how science functions in real applications. The recognition students will receive as a result of participation in such activities can: (i) strengthen

Item	Number of Students		
	ES	**MS**	**HS**
Total Population	2,308	1,165	1,422
Science subjects	-	3	7
Advanced classes (AC)	-	-	4
Number Of Students in science	2,263	1,176	1,379
Female students	1,090	534	392
Minority students	908	411	425
Science Fair	-	24	-
Average SOL score	-	452	436.7
Female Average SOL score	-	444.50	431.33
Minority Average SOL score	-	432	412.33
Students in AC	-	-	399
Females in AC	-	-	100
Minority in AC	-	-	94

Table 10: Population and SOL scores of the Students of IWCS for the 2000-2001 school year. ES = Elementary Schools; MS = Middle Schools; HS = High Schools.

Subject	White		Black	
	Females	Males	Females	Males
Algebra I	2.8 (107)	6.8 (133)	1.9 (53)	0 (48)
Algebra II	45.9 (37)	25.5 (55)	21.4 (14)	14.3 (14)

Table 11: Passing SOL rates of the Students of IWCS by gender and race for the Spring 2002 in algebra I & II. The number in parenthesis indicates the actual population of students who took the tests.

learnings specified in the Virginia Standards of Learning, K-12; (ii) lead to greater interest in advanced studies in science and mathematics; (iii) encouragements of minorities and under-represented populations to pursue university programs and careers in these disciplines.

Staff development needs specific to IWCS

- Changing the delivery of instruction from textbook-driven to concept centered
- Integration of content reading skills into science that will help students to develop scientific vocabulary and to interpret scientific text
- Use of experiments and hands-on activities that will allow students to apply the scientific method of inquiry into problem-solving
- Differentiated instruction for children ranging from gifted to special population
- Understanding of current trends in science education (best practices)
- Integrated units of instruction which combine core academic subjects and which focus on applied competencies
- Development of scientific concepts, methods, vocabulary, and operations which help to strengthen teachers in developing scientific foundations

Course	Category
Middle School	
Math 6	General
Math 7	General
Pre-Algebra 6	General
Pre-Algebra 7	Advanced
Pre-Algebra 8	Advanced
Algebra I	Advanced
Geometry	Advanced
Science	General
Life Science 7	General
Geometry	General
High School	
Algebra I	General
Algebra IA/IB	General
Geometry	General
Honors Geometry	Advanced
Algebra II	General
Honors Algebra II	Advanced
Function & Trigonometry	Advanced
Mathematical Analysis	Advanced
Calculus	Advanced
AP Calculus ABI/ABII	Advanced
Earth Science I	General
Honors Earth Science I	Advanced
Oceanography	General
Biology I	General
Honors Biology I	Advanced
Chemistry	General
Honors Chemistry	Advanced
Physics	Advanced
Anatomy & Physiology	General
Environmental Science	Advanced
AP Biology	Advanced

Table 12: List of the general and advanced courses in Isle Of Wight County for middle school and high school students.

Statistical information for IWCS teachers The total number of teachers as well as the number of teachers in science are listed in Table 15. One should not that out of those, the number of teachers teaching mathematics and science out-of-field are: one (Middle School), two (High School Math) and two (High School Math).

Grade	AM-Indian		Asian		Black		Hispanic		White		Total	
	F	M	F	M	F	M	F	M	F	M	F	M
01	1	2	0	0	59	75	1	0	112	118	173	195
02	3	0	1	2	57	80	1	1	122	121	184	204
03	3	1	0	0	78	70	2	0	113	111	196	182
04	1	2	1	1	64	62	2	1	119	133	187	199
05	0	2	0	3	58	59	3	2	106	111	167	177
06	0	2	0	1	90	88	0	2	130	136	220	229
07	4	2	1	0	64	74	0	0	124	139	193	215
08	0	3	2	1	73	62	5	2	129	149	209	217
09	0	1	0	2	63	92	1	1	121	161	185	257
10	0	1	0	1	70	64	4	3	121	138	195	207
11	0	1	0	3	51	69	1	0	122	137	174	210
12	0	0	0	0	51	42	1	0	100	112	152	154
Total	13	19	6	16	837	907	22	15	1526	1679	2404	2636

Table 13: Population of the Students of IWCS by gender and race for the Fall 2002-2003 school year. F = Females; M = Males.

Course	White Males	White Females	Black Males	Black Females
Physics	40	22	6	8
Environmental Science	28	13	7	3
Anatomy & Physiology	11	9	2	5
AP Biology	5	16	4	0
Trig (Pre-Calculus)	66	64	17	19
Calculus	39	34	4	5
AP Calculus AB	13	9	1	3
AP Calculus BC	2	0	0	0
Total Population: 1037				

Table 14: Population of students from IWCS by gender and race taking advanced courses for the 2001-2002 school year in Smithfield High School.

School	Grades Science Teachers	Teachers	Science Teachers	Percentage
Carrelton Elementary	K-5	54	40	74.07
Carrsville Elementary	K-5	16	9	56.25
Hardy Elementary	K-5	40	26	65
Windsor Elementary	K-5	42	31	73.81
Smithfield Middle	6-8	59	10	16.95
Windsor Middle	6-8	32	8	25
Smithfield High	9-12	61	8	13.11
Windsor High	9-12	46	5	10.87

Table 15: Number of total and science teachers in Isle Of Wight County School Division (2002).

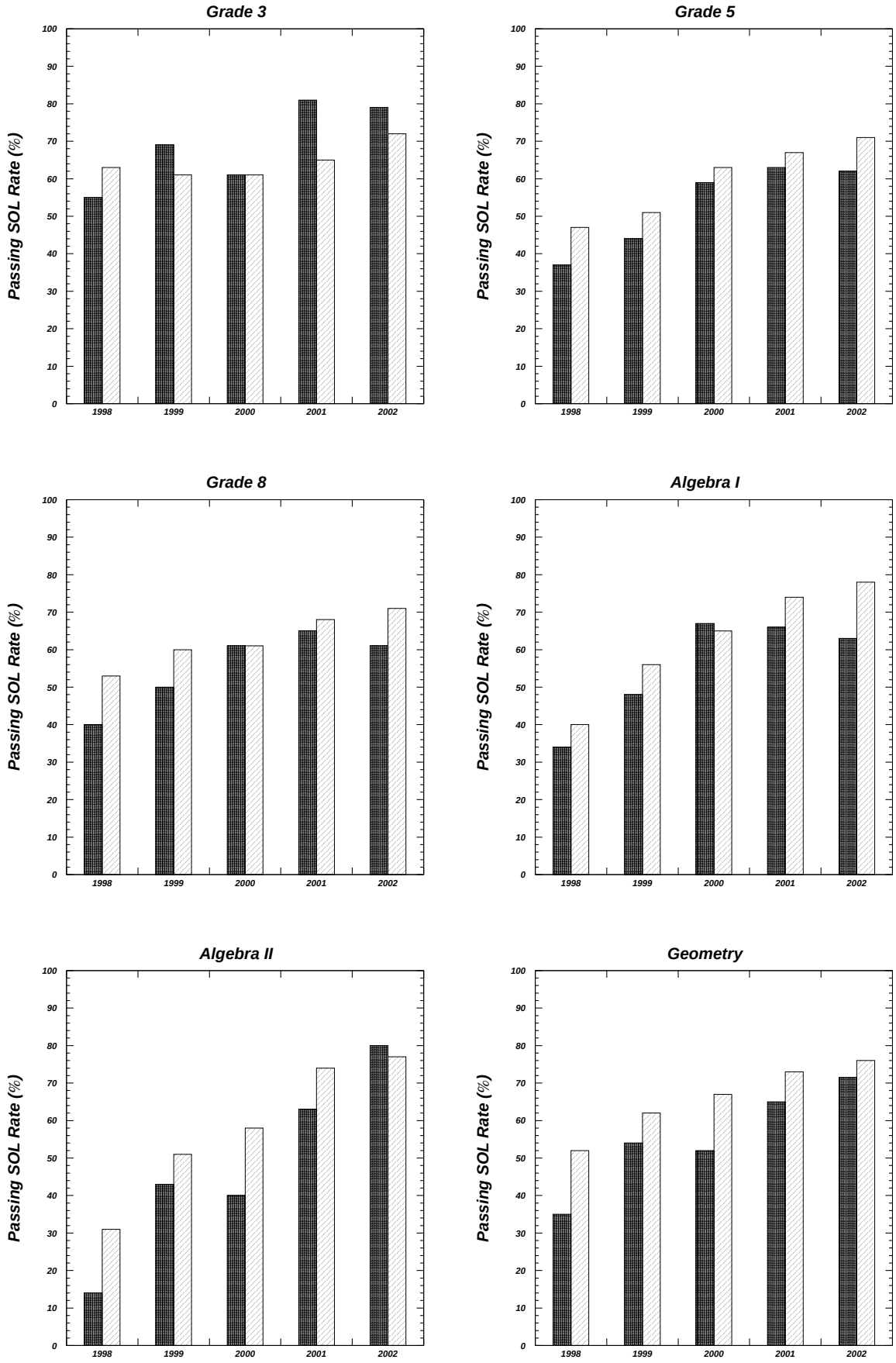

Figure 5: Passing SOL rates of the students of IWCS from 1998 to 2002 (dark) compared to the state of Virginia average (light).

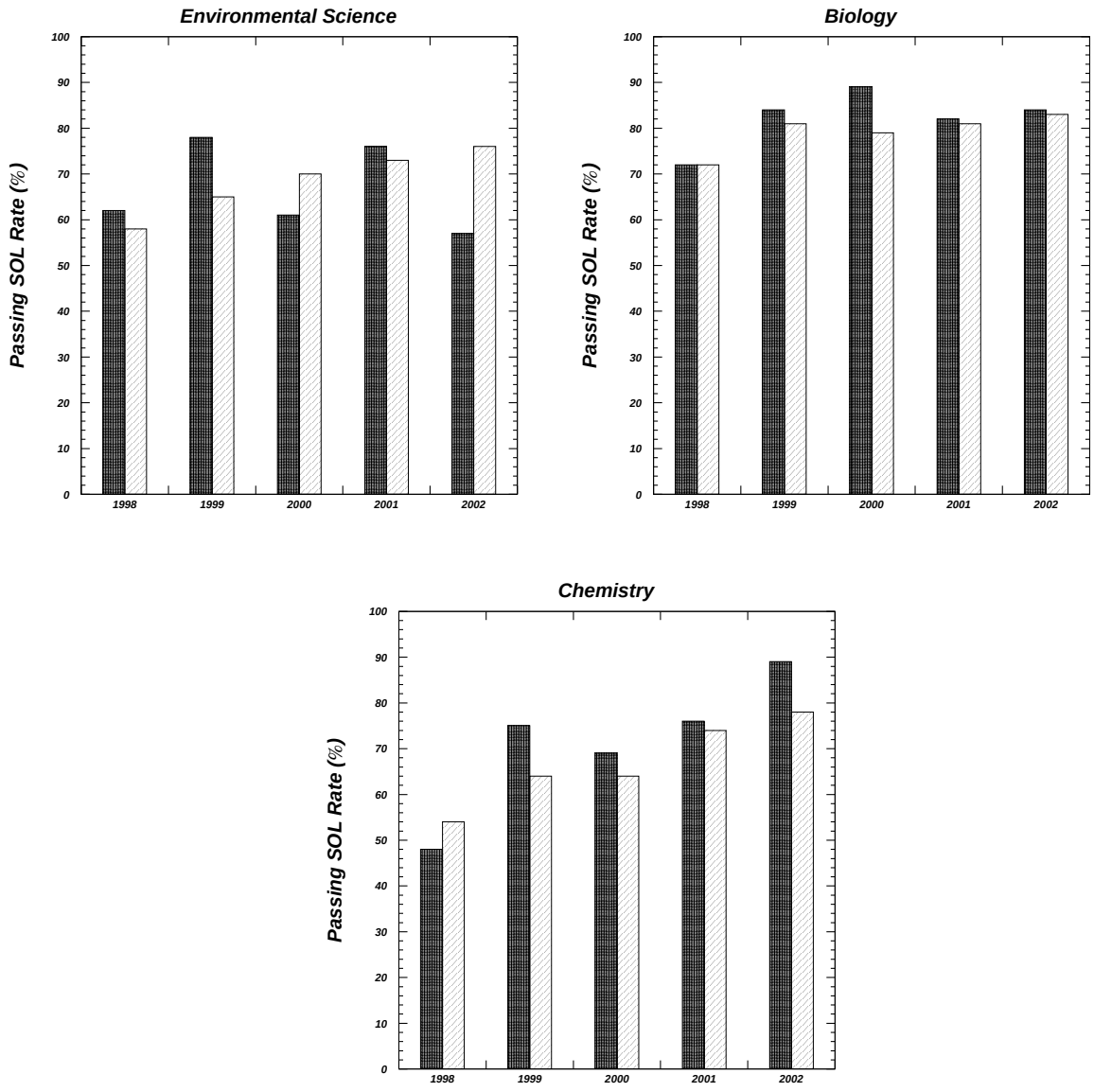

Figure 6: Passing SOL rates of the students of IWCS from 1998 to 2002 (dark) compared to the state of Virginia average (light). Ctnd.

Month	Comments
September	Official start of the $KIDS$ program Selection of students for the $KIDS$ meeting Selection of the undergraduate students for the physics shows Meeting of the $KIDS$ Board Meeting Institution/School Division with the parents
October	First Physics show Start of research projects Start of tutoring sessions
November	Selection of students for the BEAMS program Review from the Internal Review Committee (suggested)
December	Second Physics show
January	BEAMS program Meeting of the $KIDS$ Board
February	Third Physics show Review from the External Advisory Board (suggested) Selection of the projects for the $KIDS$ meeting
March	Preparation of the students for the $KIDS$ meeting Meeting of the $KIDS$ Board Selection of outstanding students of the $KIDS$ programs Meeting Institution/School Division with the parents
April	Selection of teachers and students for the special programs End of tutoring sessions $KIDS$ Meeting $KIDS$ Awards Official end of $KIDS$ program
May	Submission of research projects to the $KIDS$ board
June	Proceedings of the $KIDS$ meeting Meeting of the $KIDS$ Board
July	Selection of research projects by the $KIDS$ board Teachers/Advisors preparation on the research projects $KIDS$ summer programs Proceedings from the Evaluator
August	Submission of projects to the School Districts

Table 16: Timeline table for the $KIDS$ program.

H Timeline