

Houston Teachers Institute

Strengthening Teachers and Teaching

2009

Fellows' Handbook

<http://hti.math.uh.edu>

The Houston Teachers Institute is an educational partnership between the University of Houston and the Houston Independent School District. The Institute, located on the campus of the University of Houston, is part of a confederation of teachers institutes modeled on the pattern of the Yale-New Haven Teachers Institute, with whose assistance it was inaugurated in 1998.

The Institute's program was underwritten from 1999-2001 by an implementation grant from the DeWitt Wallace-Reader's Digest Fund. The Institute has enjoyed the generous support of the University of Houston and the Houston Independent School District, its chief sponsors, since it began. The Institute's continuing success has also been made possible by the generous contributions of Washington Mutual, The Rockwell Fund, The Simmons Foundation, The Powell Foundation, Bank of America, and Houston Endowment Inc.

The Institute may be reached via the HTI website at <http://hti.math.uh.edu>, by phone at 713.743.3986, or by FAX at 713.743.3727.

Houston Teachers Institute

2009 Fellows' Handbook

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PREFACE

To New and Returning Fellows and New and Returning Seminar Leaders:

Welcome to the eleventh year of The Houston Teachers Institute. HTI is the premiere professional development opportunity in Houston and is the product of a unique collaboration between the University of Houston and the Houston Independent School District. It is good to have all of you in HTI.

What makes HTI so special? One answer is that HTI is a collegial enterprise. “Collegial” comes from the Latin words that mean “reading together” and this reading together about a subject of mutual interest is the focus and hallmark of an HTI seminar. As you pursue the academic topic of your seminar and read together with other Fellows and the Seminar Leader, mutual respect and friendships will develop, and these, in turn, will contribute to and establish the collegiality of the group. HTI operates on the premise that everyone has something to learn about the seminar topic and that everyone in the seminar has something to contribute, whether this contribution involves presenting brief reports, commenting on the reading, or offering critique on lesson plans. It is this shared pursuit of a common interest that makes your HTI seminar so enjoyable and satisfying.

You will have the fun of meeting new people, seeing old friends, sharing delicious food, and, especially, preparing something new for your students about a topic that interests you deeply. Each week as you talk with colleagues from different schools and grade levels, you will be able to think about aspects of the seminar that you can use in your class and to plan effective approaches that will help your students enjoy learning.

The success of each seminar depends on the full participation of Fellows and Leaders. Each seminar is especially dependent on the teachers who serve as the Coordinator and the Writing Mentor. The Coordinator, the Mentor, and the Seminar Leader will be able to help in the process of writing the Curriculum Unit. Please consult them about any questions or problems. The HTI office is always available to give assistance.

Have a wonderful seminar.

Mary Ann T. Natunewicz, Ph.D.
Acting Director

Schedule



Due Dates



Responsibilities



Benefits

1. 2009 SEMINAR PROGRAM SCHEDULE

Seminars will meet on Mondays or Tuesdays from 5:30-7:30 PM except for occasional field trips on other days. Please see the *Contents* of this Handbook for more information about such matters as negotiating the syllabus, one-on-one meetings, deadlines and parts of the curriculum unit project, and the conducting of HTI seminars.

- Jan. 20 **Eleventh Annual HTI Convocation and Seminar Meeting #1**
5:15 to 5:40 PM –Meet and Greet. 5:45-6:45 PM – Program, followed by seminar gatherings in seminar rooms will conclude at 7:30. UH parking permits will be handed out. Cougar 1Cards are available.
- Jan. 26/27 **Seminar Meeting #2**
Seminar Leader leads discussion and negotiation of the syllabus. Coordinator hands out the 2009 Fellows' Handbook and explains the curriculum unit and the first assignment regarding it – the prospectus. *As always, when other program concerns are not taking place, the seminar turns to discuss materials assigned for the seminar meeting and other issues concerning the seminar topic.*
- Feb. 2/3 **Seminar Meeting #3**
Seminar Leader begins scheduling first set of one-on-one meetings. The Coordinator should work with the Seminar Leader to prepare a sign-up sheet or other means of specifying appointments. These meetings should take place between Feb. 2 and Feb. 17. Prospectus is due Feb. 9/10. Coordinator reviews requirements of the prospectus, which is due next week. Fellows are encouraged to bring copies of their prospectus for all the Fellows and the Seminar Leader and set up a method for sharing the prospectus with their colleagues.
Writing Mentors and Coordinators encourage participation & sign up for Writing Workshop #1 coming up Saturday, February 7.
- Feb. 7 **Writing Workshop #1** (Saturday)
First session: 9-11:30AM. Second session: 12-2:30 PM. Voluntary attendance – come for first session, second session, or both. Fellows can work at computer terminals and mentors will be available to give writing and unit organization assistance.
- Feb. 9/10 **Seminar Meeting #4: PROSPECTUS DUE**
Sharing work-in-progress undertaken in a variety of ways—see Handbook; one way is for Fellows to separate into small groups to share helpful comments on prospectuses.
- Feb. 16/17 **Seminar Meeting #5**
SEMINAR LEADERS return the prospectus (unless it was returned in one-on-one). Continue with sharing prospectuses, if needed. Begin discussion of first draft.

- Feb. 23/24 **Seminar Meeting #6**
Writing Mentors and Coordinators encourage participation & sign up for Writing Workshop #2 coming up Saturday, March 8.
 Answer questions regarding first draft.
- Mar. 2/3 **Seminar Meeting #7**
 Encourage Fellows to sign up for Saturday workshop.
- Mar. 7 **Writing Workshop #2** (Saturday)
 First session: 9-11:30AM. Second session: 12-2:30 PM. Voluntary attendance—come for first session, second session, or both. Fellows can work at computer terminals and mentors will be available to give writing and unit organization assistance.
- Mar. 9/10 **Seminar Meeting #8: FIRST DRAFT DUE**
 Seminars make arrangements for sharing work-in-progress in subsequent meetings. See suggestions in this Handbook for ways this might be done. Seminar Leaders will return the first drafts on Mar 24/25. Seminar Leader begins scheduling second set of one-to-one meetings to be held by April 7/8.
- Mar. 16-20 **SPRING BREAK**
- Mar. 23/24 **Seminar Meeting #9**
 First drafts returned by Seminar Leaders. Seminar Leader schedules second one-on-ones which will occur between Mar. 23 and April 14.
- Mar. 26 **First Spring Teacher Representative Meeting** (Thursday)
 Members of TR committee to begin process of determining topics for the 2010 program.
- Mar. 30/31 **Seminar Meeting #10**
 Coordinators and Writing Mentors encourage participation & sign up for Writing Workshop #3, coming up Saturday, April 11.
Discuss how the second draft differs from the first draft. The focus now is on producing the second draft which should be very close to the final Curriculum Unit.
- Apr. 2 **Second Spring Teacher Representative Meeting** (Thursday)
- Apr. 6/7 **Seminar Meeting #11**
 Set up method for sharing second drafts and decide how many copies are needed. See this Handbook for other possible arrangements for presentations of the second drafts, which are very much like the final drafts. Seminars assign presentations of second drafts for the final two seminar meetings— half for meeting #13 and half for meeting #14. Each Fellow provides the rest of the seminar a synopsis of his or her unit, or one or more lesson plans, a week before the presentation. Seminars are not required to have presentations of the second drafts; however, this sharing is encouraged to further collegiality.

If seminars have chosen to present the drafts through presentations at the next two meetings, then Fellows begin making presentations of synopsis or a lesson plan from their individual units to their seminars today.

If seminars are using meetings #13 and #14 for presentations of Curriculum Units, Fellows presenting their work at Meeting #13 will provide a synopsis or lesson plans next week for all the Fellows in the seminar. Fellows are asked to sign up if they plan to attend the last Saturday workshop on April 11. Continue with Handbook strategies and discussion of second draft. Discuss documentation.

Apr. 9 Third Spring Teacher Representative Meeting (Thursday)

Apr. 11 **Writing Workshop #3:** First session 9-11:30 AM. Second session: 12:30-2:30 PM. Voluntary attendance. Come for either session or both.

Apr. 13/14 Seminar Meeting #12: **SECOND DRAFT DUE**
Seminar Leaders schedule the third one-on-one meetings which should occur between April 20 and April 28. Seminar Leaders will return second drafts during the one-on-ones.

If seminars are using meetings #13 and #14 for presentation of Curriculum Units, Fellows presenting their work at meeting #13 provide a synopsis or lesson plans today for all Fellows in the seminar.

Apr. 16 Fourth Spring Teacher Representative Meeting (Thursday)

Apr. 20/21 **Seminar Meeting #13**

Begin discussion of final draft format. **Members of the seminar will complete the indexing form.** The HTI office is available by appointment for one-on-one meetings to offer help on writing of the final drafts. Fellows should make appointments to discuss final drafts with Seminar Leaders if necessary.

Presentation of Curriculum Units. Presentations should very briefly review the unit and outline how the Fellow has revised its content since the first draft (perhaps taking 5 minutes), after which a brief group discussion/question period follows on that unit (another 5-10 minutes for a total of no more than 15 minutes per Fellow). Half of the participants will present on this date.

Fellows presenting next week provide a synopsis or lesson plans today for other Fellows.

Apr. 20/28 Third set of one-on-one meetings. Leader makes recommendations for the final draft. Seminar Leader may meet each Fellow at sites on or off campus at a convenient time.

Apr. 27/28 **Seminar Meeting #14**

Final Meeting. Seminar Leaders have returned all final drafts in the one-on-ones by the final seminar meeting.

Presentation of Curriculum Units.

- April 30 **Final Spring Teacher Representative Meeting** (Thursday)
Members of TR committee
- June 1-3 Writing Workshops will be available. Contact HTI office for times.
- June 5 **FINAL CURRICULUM UNIT DUE** (*See the Handbook for format and procedure*)
Please submit one hard copy and one electronic copy (a floppy disk/CD) to the HTI office, either by mail or in person, and one hard copy to your Seminar Leader. Units will be evaluated over the summer and published in the winter. In November 2009, Fellows who completed all program requirements will receive their \$1,000 Fellowship stipend.

IMPORTANT DUE DATES

- Feb. 9/10** Prospectus is Due*
- Mar. 9/10** First Draft is Due*
- Apr. 13/14** Second Draft is Due*
- June 5** Completed Curriculum Unit is Due

* The Prospectus, First Draft and Second Drafts should be given to the Seminar Leader. The Seminar Leader will tell you how many copies of each should be provided for other members of the seminar.

2. EXPECTATIONS OF FELLOWS AND BENEFITS

Expectations

Between January and early May

1. Attend the annual Convocation on a Tuesday in mid-January (from 5:30 to 7:30 PM). The last 30-40 minutes of this evening will be dedicated to meeting with your seminar for the first time, just to get acquainted and prepared for the first full seminar meeting a week later.
2. Help determine assigned readings by finalizing the tentative syllabus in response to discussions with the Seminar Leader and other Fellows at the first full seminar meeting after the Convocation. See schedule for dates. At this meeting you will join in considering choices presented in the syllabus. This discussion may involve possibly adding new sub-topics and readings.
3. **Attendance:** Participate in all two-hour seminar meetings in which either study of the seminar topic or the development of curriculum units will be the focus of attention. The meetings are from 5:30 to 7:30 PM on Mondays or Tuesdays from January to early May. Please make every effort to be on time.

The Institute expects Fellows to attend on time and to come prepared to all seminar meetings and to attend each meeting until it ends. If at any time you realize that you will be unable to attend or will be late, you must make every effort to inform either the Seminar Coordinator or Seminar Leader in advance. More than three absences may result in your being dropped from the Institute

program for the year. Tardiness to a seminar meeting of more than 15 minutes or departure from a meeting more than 15 minutes early will be counted as an absence. Because the Institute enrolls relatively few teachers (usually only ten to fifteen per seminar), all absences are keenly felt. The success of the seminars truly depends to a great extent on the active presence of all enrolled. It is a necessity, therefore, to ask all Fellows to abide by these attendance requirements. Each seminar session will meet for two hours per week at a designated site on the UH main campus.

4. Communicate with the Seminar Coordinator and the Seminar Leader regarding any expected absence or tardiness, or about questions concerning deadlines for stages of curriculum unit development, and other matters related to seminars and unit creation.
5. Write a curriculum unit as described in this Handbook in the section titled *Guidelines for Writing a Complete Curriculum Unit*. You are responsible for developing your unit over the length of the term and submitting the parts of that project on the required dates according to the current year's schedule. Consult the Seminar Program Schedule on the previous pages.
6. Schedule three conferences with the Seminar Leader to discuss your curriculum unit during the term. Consult the Seminar Program Schedule.
7. Submit the prospectus when it is due in early February and meet with your Seminar Leader to discuss it and your unit plans; submit your first draft of the curriculum unit on time in March and meet with your Seminar Leader again individually to consider it and your progress in developing your curriculum unit; submit your second draft when it is due in April and meet with your Seminar Leader a third time individually to discuss your progress. If necessary (if you need additional help) meet with your Seminar Leader additional times, either in person, by phone, or by e-mail.
8. Attend any or all of the three HTI Curriculum Unit Writing Workshops held on Saturdays. **All Fellows are strongly encouraged to attend.**

Between mid-May and the beginning of June

1. Complete final version of the curriculum unit. Individual mentoring will be available in May at the HTI offices. A schedule of these mentoring meetings is in the Program Schedule. Curriculum units are due in early June. Submit a copy to your Seminar Leader. Submit another copy to the HTI office on or before the deadline. See the checklist of required items.
2. Complete a Seminar Evaluation/Questionnaire Form that will be given to you in May and return it to the HTI office no later than the beginning of June.

Policy: The school year following participation in an HTI seminar:

Each Fellow pledges on the application to teach his or her unit in the classroom of an HISD school the year following participation. A Fellow must be teaching in an HISD school the year following his or her participation in order to be eligible for the Fellowship stipend. The Institute, therefore, cannot accept an applicant unless his or

her principal verifies that the individual's proposed curriculum unit and intended seminar are consistent with the curricula and academic plans of the school, and that the individual will be assigned in the coming year one or more courses in which it will be possible to teach the unit.

Benefits

1. Each Fellow is able to work closely with a UH faculty member in a field related to the Fellow's own interests as a professional classroom teacher.
2. Fellows study at UH for an entire semester and experience the pleasure of renewing affection for the subject they teach in the company of likeminded colleagues from a variety of HISD schools.
3. Teachers have the opportunity to prepare a thoroughly researched teaching unit under the guidance of a UH faculty expert.
4. Institute Fellows become full members of the University of Houston community for the length of the seminar term, with a free parking permit for the UH campus, borrowing privileges at the university libraries, access to university e-mail and computer services, and access to campus gyms.
5. The Institute publishes the written work of all Fellows who successfully complete a curriculum unit.
6. All teachers who successfully complete Institute requirements are awarded a Fellowship stipend of \$1,000 in the fall after they participate. Note that outstanding obligations to the University or in some cases to the state of Texas will stop the payment.
7. All teachers who successfully complete Institute requirements receive 32 hours toward the TAGT Gifted and Talented Awareness Certificate.

3. THE INSTITUTE AND ITS SEMINAR PROGRAM

The Houston Teachers Institute helps public school teachers in Houston by offering a six-month seminar program featuring seminars taught by university faculty on subjects public school teachers themselves request. The Institute's purpose is to strengthen teachers as professionals and enhance teachers' knowledge in their subject areas of teaching. This strengthening comes as participating teachers learn about topics in the arts and sciences in the company of distinguished university professors and a group of likeminded colleagues. Each teacher also develops professionally through the process of creating a 15-20 page curriculum unit during the seminar term; by writing this curriculum unit, the teacher takes knowledge of the seminar topic back to the classroom for use in the following year. Teachers play a leading role in determining how the Institute and each seminar it offers can be of assistance to them as they prepare lessons tailored to the needs of the students they know best—their own. The Institute, a partnership between UH and HISD, is committed to fostering a love of learning among all seminar participants, believing that the best teachers are those who are passionate about their subjects.

Administration of the Houston Teachers Institute

At its founding in late 1998, Paul Cooke was appointed institute director. David Judkins, associate professor of English at UH, became the director in 2004 and served until 2006. Nancy Ford was the director from 2006-2007, and Mary Ann Natunewicz is the current director. Mallory Chesser serves as the Institute's program manager. The Institute office is ready to assist all program participants to complete the program requirements and to encourage teachers in their work at the Institute. Fellows should not hesitate to contact either the director or program manager. Both can be reached at the HTI e-mail address: hti@uh.edu. The Institute office phone is 713.743.3986. Our fax number is 713.743.3727. You can find more information about the Institute on the HTI web site at <http://hti.math.uh.edu>.

The History of the Houston Teachers Institute

The Houston Teachers Institute (HTI) is part of a national project led by the Yale-New Haven Teachers Institute. HTI was started in 1998 under the auspices of the Yale Institute and through a grant from the DeWitt Wallace-Reader's Digest Fund. The Yale-New Haven Teachers Institute itself was inaugurated in 1977 when Yale University and the public school system in New Haven, Connecticut jointly established a program to strengthen teaching and thereby improve student learning in New Haven's public schools. HTI seeks to replicate the Yale-New Haven project in Houston. HTI is now a part of The Yale National Initiative to develop new institutes in other major cities. A major aim of the initiative is the program of summer intensive seminars at Yale in July. Each year a number of HTI Fellows apply, are accepted as National Fellows, and participate in the summer seminars at Yale.

The Annual January Convocation

On a Tuesday evening in mid to late January each year the teachers admitted to the Institute come together for the ceremonial start of the year's seminars. This is the one event in the year in which all of the Institute members and its supporters in the community gather together.

Seminars

The principal program activity of the Institute is its seminars. These consist of weekly two-hour meetings from late January to early May, held either on Monday or Tuesday evenings from 5:30 to 7:30 PM. Seminar meetings conclude in early May in order to allow teachers the time to concentrate on their end of the school year duties and to have ample time to complete their curriculum units which are due in early June. The seminars have the related and equally important purposes of increasing Fellows' background in, and developing new curricular materials on, the seminar subjects. Seminars stress discussion; they are not lecture classes nor are they courses in the usual sense of the term. They are collegial and collaborative in nature and aim to address the needs of classroom teachers in Houston's public schools.

The First Full Seminar Meeting

The seminars are encouraged to take time at this meeting (or at the subsequent one) to allow seminar members to acquaint each other with the projects they will pursue individually. Seminar Leaders are also encouraged to distribute bibliographies at the first

meeting; these will help Fellows as they begin to plan their research. At the first meeting, too, seminar members use the syllabus provided by the seminar leader to prompt discussion to decide on a final list of common readings to be discussed at subsequent meetings.

The Subsequent Meetings

At weekly meetings held between January and May, Fellows study the general subject of the seminar and consider work in progress on the individual curriculum units by discussing common readings, including each Fellow's own writing. They also explore teaching strategies and classroom activities.

Seminar Leaders

The Institute prides itself on cultivating collegial relations between University of Houston faculty and faculty of Houston's public schools. A hallmark of the Institute is that university faculty Seminar Leaders and public schoolteachers both benefit from working together—all are strengthened and encouraged in their professional commitment as educators. Each year the Institute seeks out distinguished UH scholars to lead seminars on topics suggested by teachers themselves and to supervise the creation of curriculum units on subjects in the arts and sciences. Seminar Leaders are the chief guides to the seminars and, while participating as colleagues, also serve as mentors to participating Fellows.

Seminar Coordinators

Coordinators are experienced HTI Fellows who work with the Writing Mentors in the seminars. They can give good advice about writing the curriculum unit, including formatting and documentation. They are available by phone or e-mail to answer any of your questions or to assist you with the seminar and the curriculum unit. Coordinators are also Fellows in their seminars and are expected to complete a curriculum unit. They are chosen annually for one year and form the core of the Institute's teacher leadership during that year, for which they receive a \$700 honorarium. They are your colleagues, your equal partners, in the seminars. Indeed, their chief work is to serve the Fellows in their seminars to help make the Institute program a satisfying experience for all participants.

Coordinators Handle Attendance

If you find for some reason that you cannot attend a seminar meeting, you should contact your Coordinator before the seminar meets. If you forget to notify your Coordinator, your Coordinator will telephone or e-mail you to record the reason for your absence and pass on information about the seminar meeting. Periodically, your Coordinator will distribute handouts that will assist you with the writing of the curriculum unit. Coordinators also keep the Fellows and the Seminar Leader up-to-date on the schedule, particularly submission deadlines.

The current HTI Seminars, Seminar Leaders, and Coordinators are listed on the back of the Handbook.

Coordinator Responsibilities

1. Read applications for seminars and participate in admissions meetings to select Fellows for each seminar.
2. Meet with your Seminar Leader in December to review the applications of the Fellows in your seminar to determine the scope and focus of the seminar. Schedule another meeting before the seminars begin if necessary.
3. Provide teacher leadership and support for Fellows and Seminar Leader.
4. Work closely with the Seminar Leader to assure the success of the seminar. At the first seminar meeting, check to see if the room is large enough for the group and that everyone is sitting around the table. Note any problems: Is the room too hot, too cold, too crowded, or too noisy?
5. Help schedule the refreshments and remind Fellows when it is their turn to bring the food. **Coordinators bring food for 1st seminar meeting after Convocation.**
6. Be available to the Seminar Leader to act as a source of information on school requirements and procedures.
7. Attend weekly Coordinators' meetings or as scheduled (usually Thursdays from 4:45 to 6 PM) and act as a liaison between the Director and Fellows, distributing handouts and other information from the HTI office.
8. Work with the Writing Mentor and Seminar Leader to assist Fellows with the writing of the Curriculum Unit, especially in the areas of content, formatting, and documentation. Emphasize the template for the curriculum unit and the lesson plan format.
9. Monitor the progress of the seminar meetings through observation and conversation with the Fellows and give reports on the progress at Coordinators' meetings.
10. Help maintain the collegial atmosphere by encouraging all Fellows to participate actively in discussions.
11. Attend all seminar meetings and take attendance. Shortly after the seminar (that evening or next morning), notify the HTI office (by using the special e-mail form provided by HTI) of any absences or tardies. Give reasons for absences and tell whether you (the Coordinator) or the Seminar Leader had been notified in advance. Phone or e-mail Fellows who are absent to record why Fellows could not attend, pass on information about the seminar meeting, and inform the Fellows about what readings should be done for the next meeting. Keep track of the progress of each Fellow in developing his/her unit. At each due date (prospectus, first draft, and second draft) record who has not turned in the required work, and a week later, check to be certain all Fellows have received comments from the Seminar Leader on their returned papers.
12. Keep Fellows and Seminar Leader up-to-date on the schedule, especially the submission deadlines (both for the Fellows to turn in drafts and the Seminar Leader to return drafts with comments). Contact those who have missed deadlines to offer help or answer questions.
13. Promote Saturday Writing Workshops, and e-mail the HTI office the names of Fellows who have signed up for each session.

14. Discuss sections of the Handbook with Fellows, pointing out where they can find important information about deadlines, requirements (including template) for the unit, formatting of the unit, permission to use copyrighted materials, guidelines for quotations and citations, and definitions of plagiarism.
15. Along with the Writing Mentors, proofread the prospectus, as well as the first and second drafts for the Fellows in their seminars, looking at **formatting**, **parenthetical documentation**, and **bibliography form**, as well as looking at whether or not the Fellows are following the **template** and **lesson plan format**. By looking at the parenthetical documentation, the Coordinators and Writing Mentors can note such things as missing sources (sources not listed on the Works Cited page) and/or page numbers missing in the parenthetical documentation. Emphasize that Internet sources are more than just the “http” address. Discuss the examples in the bibliography section of the handbook. Also express the need to copy the URL correctly. Discuss the lesson plan format and emphasize that these plans must be original—not copied from an Internet source or a workbook.
16. Be available to give help to the Fellows both in person, by e-mail, and by phone.
17. Provide information on facilities provided by the University of Houston, such as libraries and computer service.
18. Ask the Seminar Leader if she/he would like you to remind the Fellows of scheduled appointments for one-on-one meetings.
19. Discuss with the Seminar Leader and/or Fellows how they would like to share their work in progress.
20. Contact HTI Director for major problems, such as repeated tardiness, two or more absences, and inappropriate behavior in seminar (sleeping, grading papers, doing other reading, etc.).

Coordinators receive a \$700 honorarium. Those who do not fulfill their responsibilities will receive a reduced prorated honorarium of \$30 per coordinator meeting attended.

Teacher Representatives

Each year 25 to 30 teachers serve as the Institute’s representatives in their schools and as their schools’ representatives to the Institute. In some cases, one teacher represents more than one school. These teachers may request to take on this job or are invited to become Teacher Representatives (TRs) by the director. TRs meet approximately eight times between late August to early November to coordinate and discuss recruitment of new Fellows for the upcoming HTI program. They meet three or four times each spring to help plan the next year’s HTI program. Their duties involve advancing word about the Institute in their schools and encouraging teachers in their schools to become involved in HTI. Each Teacher Representative receives an honorarium of \$500 for his or her service. If your school does not have a Teacher Representative, and you would like to serve HTI as a TR, please contact the director.

Teacher Representatives (TRs) are selected by the Institute Director and serve for a full school year, from August through June of the following year. A TR must be, and must continue as, a full-time teacher in an HISD school during the year he or she serves in this capacity. TRs receive the benefit of automatic admission to the Institute as Fellows in a

seminar (though they must complete a formal Fellow's Application for a particular seminar). As Institute Fellows they are expected to complete a seminar and curriculum unit during the year of their service, for which they will receive the Institute's \$1,000 fellowship stipend. In addition to the fellowship stipend they receive as successful Fellows, TRs also receive an honorarium of \$500 if they fulfill the whole year's service.

If the Institute is to succeed, it must rely heavily on committed teachers serving as TRs in participating schools who take the responsibilities of Teacher Representative with a sense of seriousness. They should take on the role intending to complete a year in the position, participate in a seminar, and complete a curriculum unit. As TRs, their work will be to encourage other teachers to apply to become Fellows, and if these teachers are admitted to the program, to encourage them to complete the program successfully.

TR Responsibilities

1. TRs are required to participate in an HTI seminar the year they serve as TRs.
2. TRs attend six or seven scheduled meetings from August through November and three or four other meetings between February and May.
3. TRs maintain frequent contact with all teachers in their schools who are participants or prospective participants in the Institute. Consequently, TRs represent the Institute in their schools, and they also represent the interests of teachers in their school in the councils of the Institute.
4. TRs distribute applications and encourage teachers to apply to become Institute Fellows. In fulfilling this responsibility, TRs are urged to personally invite teachers to the Institute Open House each fall.
5. Teacher Representatives assist the Institute Director during the spring semester in suggesting and selecting Institute seminar subjects or topics that are responsive to the needs teachers have identified.
6. TRs promote teachers' use of Institute-developed curriculum units in the schools.
7. A TR is responsible for establishing a good working relationship with administrators in his or her school, keeping them up-to-date on Institute participants, activities, and services—and soliciting their advice and assistance.
8. TRs assist teachers in preparing applications to the Institute each fall.
9. TRs advise the Director during the application review.
10. TRs are the principal pool of teachers from which the Institute's annually selected Coordinator Committee is chosen. One Coordinator serves in each seminar. The Coordinator Committee also serves as an admissions committee.

Payment of Teacher Representative Honoraria and Absences from TR Meetings

TRs receive \$500 for performing this important role in the Institute program. The Institute will strive to pay the TR honorarium no later than September 30 of each year, after it is clear that each TR has successfully met all requirements noted above. TR meetings usually are held on Tuesday afternoons in the fall (typically from 4:45 to 6:15 PM). If a TR is more than 30 minutes late to a TR meeting or leaves more than 30 minutes early, that will count as an absence. After more than three absences from TR meetings, TRs will receive an honorarium on the basis of \$40 for each meeting attended.

On Teacher Representatives Withdrawing From the Institute

Each TR is expected to be involved in a seminar during the year he or she serves. TRs must be in the seminars in order to support those they and others recruit, and to serve as an example of participation in the program they work to promote. The TR's availability to help others as a participant during the seminar is a vital part of the role. If a TR fails to participate as a Fellow, if participation is intermittent or if he/she does not complete a curriculum unit, a key aspect of his or her role is made impossible. It is, thus, the Institute's view that if a TR withdraws from the Institute without completing a seminar and creating a curriculum unit, he or she is failing to fulfill his or her role.

However, since circumstances sometimes make it necessary for TRs to withdraw from the Institute in spite of their good intentions, we still wish to demonstrate to such teachers our appreciation for what they have done in the position. These teachers will therefore be eligible for a reduced honorarium totaling \$30 for each TR meeting they attended during the program year from August through June.

For a list of current Teacher Representatives, please see the HTI website at <http://hti.math.uh.edu>, and click on "Representatives."

Seminar Reading and Independent Reading

HTI Fellows read extensively in the seminar subject *and* intensively on the topic of the curriculum unit being developed between January and May. As a Fellow, you are expected to begin curriculum unit research early in this period. Seminar Leaders are encouraged to provide bibliographies for the seminar. You will find those bibliographies useful as you begin research for your curriculum units. You may also find (and share) your own readings as you proceed to refine and enlarge your unit topics.

You should not hesitate to call on your Seminar Leaders for guidance in your reading and research. You are also expected to complete readings in preparation for each seminar meeting. These seminar readings are drawn from the syllabus prepared by the Seminar Leader and supplemented by suggestions from the Fellows themselves.

Curriculum Unit Writing

The creation of a curriculum unit by each participating Fellow is the project at the heart of the Institute program. During the seminar term Fellows compose a curriculum unit, drawing on the content of the seminar, in order to offer their students the benefit of their enriching professional development in the form of an innovative set of lessons. This unit is composed of an essay about the subject matter to be taught and includes objectives and a rationale, at least four fully developed lesson plans, and an annotated bibliography. It is written in increments, beginning with the application, followed by a prospectus, a first draft, a second draft, and then a final curriculum unit. One-on-one meetings between Fellows and Seminar Leaders, the Institute Writing Mentors, and the voluntary Saturday Curriculum Unit Writing Workshops are all designed to assist Fellows with the creation of their curriculum units.

Curriculum unit writing must include the documentation of sources so that proper credit is given to authors and works from which Fellows draw their information. Extensive guidance on proper documentation is provided by the Institute through this Handbook and by Seminar Leaders, Coordinators, and Writing Mentors.

Complete information about the composition of curriculum units is found in the Guidelines for Writing the Unit, and their formal specifications are found at the end of this Handbook.

The Institute Writing Mentors

Writing Mentors are Fellows who assist other Fellows in the composing of the curriculum unit. The mentors are experienced in writing HTI curriculum units and are chosen to provide effective coaching in curriculum unit composition. They may be asked to read over a Fellow's prospectus or draft and suggest to Fellows ideas that they may want to incorporate in their units, help Fellows organize and format their units, assist the Fellows with editing, suggest ways to develop their work, and answer any questions a Fellow may have about writing or about documentation of sources. Mentors may also telephone or e-mail Fellows to inquire about their progress in the composition of their units and give helpful advice. Fellows are also encouraged to e-mail drafts of their unit to Mentors for comments and suggestions. Writing Mentors receive a \$400 honorarium for their services.

Responsibilities of the Writing Mentor

1. Attend a meeting with coordinators prior to the first Saturday Writing Workshop.
2. Attend three Saturday writing workshops (both morning and afternoon sessions) to assist other Fellows in the composing of the Curriculum Unit.
3. Assist Fellows at one of the three days of workshops in June.
4. Work with the coordinators to advertise and promote the workshops.
5. Relieve anxiety that some Fellows may experience prior to the deadlines by encouraging them and answering questions that may arise in the seminar.
6. Be available by e-mail or phone to discuss problems or concerns of the Fellows in the seminar and assist any Fellow from any seminar during the Saturday workshops.
7. Work with the seminar coordinator and seminar leader to assist Fellows with the writing of the Curriculum Unit, especially in the areas of content, formatting, and documentation. Emphasize the **template** for the curriculum unit and the **lesson plan format**.
8. Along with the coordinators, proofread the Prospectuses, as well as the first and second drafts, for the Fellows in their seminars, looking at **formatting, parenthetical documentation, and bibliography form**, as well as looking at whether or not the Fellows are following the **template and lesson plan format**. By looking at the parenthetical documentation, the coordinators and writing mentors can note such things as missing sources (sources not listed on the Works Cited page) and/or page numbers missing in the parenthetical documentation.
9. Emphasize that Internet sources are more than just the "http" address. Discuss the examples in the bibliography section of the handbook. Also express the need to copy the URL correctly.
10. Discuss the lesson plan format and emphasize that these plans must be fully developed and original—not taken from an Internet source or a workbook.

All Writing Mentors are available to help Fellows. We attempt to appoint an experienced HTI Fellow as a Mentor for each seminar. In addition, V. Kay Jones, the Writing Mentor Coordinator, is available to help any Fellow and will attend all writing workshops. Please feel free to call or e-mail her. Her e-mail address is located on the inside back cover of this Handbook as is a list of this year's Writing Mentors.

If a Writing Mentor is not able to attend all or part of a Saturday workshop, he/she may assist at a second day of workshops in June. Failure to make up the time will result in a \$50 deduction from the stipend. If a Mentor should not complete a curriculum unit \$100 will be deducted from the stipend.

Saturday Curriculum Unit Writing Workshops

On three Saturdays during the term, curriculum unit writing workshops are held in a computer-writing lab on campus. The morning session will begin at 9 AM and go to 11:30 AM. An afternoon session starts at noon and goes to 2:30 PM. Fellows are asked to sign up for the sessions during seminar meetings; they can attend one or both sessions. The workshops are not lectures but rather provide Fellows with time to focus on the writing of their curriculum units at a computer station with the aid of one-on-one assistance from the writing mentors who staff the workshops. In addition to assisting Fellows with organizing, developing, and formatting their units, mentors will assist with the preparation of an annotated bibliography in MLA style and the proper way to cite sources. This is also a venue where Fellows have the opportunity to have any of their questions immediately answered. In the past, Fellows have completed substantial portions of their curriculum unit at the writing workshops and found them to be worthwhile. All Fellows are encouraged to attend. Three days of workshops will be offered in June before the Final Curriculum Unit is due.

One-on-One Meetings between Seminar Leaders and Fellows

Fellows will meet individually with their Seminar Leaders at least three times. During these meetings the Seminar Leader will discuss with the Fellow his or her curriculum unit, coaching the Fellow in its composition, suggesting reading material, clarifying the topic and advising revisions. The first meeting may occur before the prospectus is due and will focus on the unit topic and readings. The second meeting will occur after the first draft is returned with the Seminar Leader's comments and will focus on revising and expanding the first draft. This is a particularly important event in the creation of the curriculum unit, and Fellows and Seminar Leaders are encouraged to make this meeting very productive. During the third one-on-one meeting the second draft is returned with the Seminar Leader's comments, and, like the second meeting, should focus on revising and expanding the draft into the fully developed, final curriculum unit.

Sharing Work-in-Progress in Seminars

In addition to hearing from the Seminar Leader, Fellows are given the opportunity to receive suggestions and encouragement through sharing work-in-progress with the Fellows in their seminar. The importance of doing this during seminar time, and various ways of going about it, are explained later on.

Sharing Work-in-Progress is Beneficial to the Fellows

Fellows benefit when they read the work of their colleagues in the seminars starting with the prospectus. As a Fellow, your discoveries and your explanations of how certain problems were solved—or are in need of solving—allow your colleagues in the seminar to help one another. When you know about each other’s projects, you can offer suggestions or get ideas for your own projects. Over time this sharing helps build a feeling of community and collegiality in the seminars as well. This sense of collegiality is part of the fun that is a hallmark of the Institute program and makes the seminars more rewarding for everyone.

Sharing Work in the Seminar About Individual Curriculum Units Is Not Time Taken Away from Studying Seminar Content.

When Fellows share their work, a great deal of very helpful cross-fertilization takes place. Seminar Leaders can use the time of presentations to question and to solicit comments so that these **brief** presentations become discussions about content—about the very subject of the seminar.

One way of organizing the sharing of individual units and cutting down on seminar discussion time is to divide the Fellows into small groups of three or four. These Fellows then distribute the prospectuses (and later drafts) to the three or four Fellows in their group. The groups can then discuss each Fellow’s work in a short session at the beginning of a seminar meeting.

On keeping it brief: Whether shared in small groups or in the large group, if every seminar Fellow receives an e-mail or written communication in some form from his/her colleagues about his/her work before the presentation day, and reads it, then the presenting Fellow need only talk briefly about his/her project, after which the other Fellows can ask questions or discuss some aspect of the developing curriculum unit. In the process, others are allowed to get a look at some idea pertinent to the general topic through discussion of each particular unit.

The End-of-Program Requirements and the Months of May and June

As an HTI Fellow, you are expected to submit your final version of the curriculum unit in early June. In addition, you are expected to return a copy of the Fellows’ Evaluation/Questionnaire by the early June unit due date. These questionnaires are given to all Fellows in May with a stamped, pre-addressed envelope to facilitate mailing them back to HTI. When putting finishing touches on your units, you are encouraged to contact your Coordinator, any of the Writing Mentors, and the HTI office if you need assistance. The early June deadline is firm, and you must plan ahead so you can turn in your unit and evaluation by the deadline. All HTI Fellows are urged to remember that curriculum units are required to meet the specifications described later in this Handbook.

Letters Certifying Professional Development Credit

In September, the fall after you have successfully completed the program, you will receive a certificate verifying that you have earned 32 Gifted and Talented credit hours from the Institute applicable to the requirements for the GT Awareness Certificate awarded by the Texas Agency for the Gifted and Talented.

Teaching of Curriculum Units

The Institute expects that you will honor your application pledge to teach your HTI curriculum unit to students in your classroom in HISD either in the fall or the spring following completion of the HTI seminar.

Distribution of Fellowship Stipends

Upon successful completion of the seminar and the unit, after the Institute has received your completed Fellows Questionnaire, and after HTI has verified with HISD that you are employed in the Houston Independent School District, you will receive a Fellowship stipend of \$1,000, which will be mailed out in November after the completion of the program. Fellows who have outstanding library fines, parking tickets, delinquent student loans, or other obligations to the University or in some cases to the State of Texas, may have their Fellowship stipends delayed until these obligations are cleared up. If you do not receive your check from HTI by the first week in December, it is your responsibility to call HTI at 713-743-3986 and report that you did not receive your Fellowship stipend.

Publication of Curriculum Units

The Institute publishes the units of those Fellows who complete all HTI requirements in bound volumes and on the HTI website. All Fellows will receive three copies of the volume in which their units appear. The Institute arranges a small “publication party” each year when the time for distribution arrives so that seminar members can see one another again and celebrate the completion and distribution of their volumes.

Resources Available to Fellows

LOG ON TO <http://hti.math.uh.edu> and see what UH can offer to you as a Fellow with HTI. The information in this section will help you to get you started. Because phone numbers, library hours, and office hours are subject to change, consult the UH website for updates.

4. PARKING ON THE UH CAMPUS

You have been issued a University of Houston parking permit. The permit is valuable—please do not lose it! It will enable you to park in a campus student lot, or in an outlying/economy lot at any time of day. (You may not park in lots which are gated, faculty/staff lots, residential lots, or in reserved parking spaces.) When you receive your parking permit, you will also receive detailed information about where you may or may not park. Please be aware that the information does change from year to year. In order to avoid getting a ticket, you must display your hanging parking decal on your rear-view mirror at all times when you are parking on campus.

Along with your parking permit, you have also been issued a campus map which will help you decide where to park depending on which building on campus is your destination—student lots are indicated on the campus map. At peak times of the day (mid-mornings and early afternoons, Monday through Friday) parking lots can be very crowded, and finding a spot close to where you are going can be difficult. In such cases, you may wish to park in one of the outlying lots and take one of the free shuttle buses that are available.

If you have any problems or questions about parking, or if you receive a ticket while on campus, you can call the office of Parking and Transportation at 713.743.1097. This office is located in Room 1, in the basement of the Ezekiel Cullen building. **Caution: Parking tickets are a great nuisance, expensive, and difficult to appeal.**

5. COUGAR 1CARD: GETTING YOUR UH ID

Every Institute Fellow should obtain a Cougar 1Card. They are free of charge, and here's how you can get one:

What to do: To get your ID card go to the Cougar 1Card office and bring along your Letter of Acceptance to HTI and some form of photo identification. Your photo will be taken and your ID card will be made for you while you wait.

Where: The Cougar 1Card office is located on the second floor of the University Center, in room 279. The University Center is on your campus map.

When: The Cougar 1Card office is open during the following hours: 8:00 am to 5:00 pm, Monday through Friday.

If you need more information, call the Cougar 1Card office at 713.743.2399.

As a Fellow of the Institute, you are considered a full member of the University of Houston community, and as such you are entitled to make full use of all of the resources which the university has to offer. For example, you can check out books at any of the campus libraries, use university computers and e-mail accounts, and even work out at the campus gyms. However, to do any these things, you will need a UH identification card, the Cougar 1Card. The library, the computers, and the gyms will require you to register

with your Cougar 1Card, but the facilities do not require a fee, except for the fitness center, which has various membership terms and payment options.

6. A NOTE ON LIBRARY PRIVILEGES

Individuals participating in the Institute's seminars will have access to all University of Houston Libraries. Using your Cougar 1Card, you may check out books, access electronically stored data, and use the computer facilities at any campus library. (Note: at any one time, a Fellow may have no more than five (5) books checked out of the UH Libraries.) From the computers in the library, you can search library catalogs, access the Internet, or access your UH e-mail account. Copy machines are also available at the libraries, with a full-service copy center in the University Center Underground.

The main library on the UH campus is the M.D. Anderson Library. In addition to this main library, there are several smaller libraries housed in the Moores School of Music, the Law school, the Architecture building, and the Optometry and Pharmacy schools. These libraries have more limited collections, but they are also available for your use once you are properly registered.

Renewing and Returning Books

All Fellows are asked to return and renew borrowed library books in a timely manner. The good relationship between the Institute and the university libraries depends on your doing so. As is the case with university students, faculty and staff, Fellows are responsible for any fines or fees incurred due to lost or late library books.

You can renew your books over the Internet at <http://info.lib.uh.edu/> by clicking on the "Services" link and then selecting "Borrowing Materials." From here you can select view your library record and renew books, among other things. (The direct link is <http://info.lib.uh.edu/services/borrowing.html>.) To use this feature on the library website you'll need to have your Cougar 1Card handy. **When you return books to the library be certain to return them to the library from which you borrowed them.**

Open Library Workshops

The main library sponsors many guided tours and information workshops, especially during the first few weeks of each semester. They offer tours of the campus library, courses on finding articles, and on effectively using the Internet for research.

If you would like to take a tour of the main library or attend a workshop, please call 713.743.1050 to find out about dates and times. Or visit the M.D. Anderson Library's Web site at <http://info.lib.uh.edu/> and click on "Classes and Workshops" under the section "Services."

UH Library Hours and Phone Numbers

In this Handbook you will find a list of University Libraries and phone numbers. Please note that library hours vary during finals, holidays and the UH Spring Break. During final exam periods at the end of the semester the main library often has extended hours. *At any location, you must present your Cougar 1Card to check out materials.* You may call the library to find out when the library hours are, and you may also check online at the M.D. Anderson Library website to find out where libraries are located, what facilities they offer, and what the hours of operation are for a particular UH library.

M.D. Anderson Library (Main Library)

713.743.1050

<http://info.lib.uh.edu> (You can check library hours, access your library account and renew books from this website.)

Music Library

Housed in the Moores School of Music
713.743.3197

John O. Quinn Law Library

Housed in the basement of the Law Center
713.743.2323

Architecture and Art Library

Housed in on the first floor of the Architecture building
713.743.2340

Optometry Library

JDA Building
713.743.1910

Pharmacy Library

Science and Research 2
713.743.240 for Hours

We hope this information will be helpful to you as you make full use of the University's library facilities. Please consult your map to locate the libraries.

7. ELECTRONIC RESOURCES AND COMPUTING SERVICES FOR INSTITUTE FELLOWS

This document describes the computing resources and facilities available to seminar participants, including:

- Computer Facilities
- E-mail Accounts
- On-Line Resources
- Computer Assistance

With your UH computer account you have access to many of the computers at the University. You will have to go to room 116, in PGH (Phillip G. Hoffman Hall) with your Cougar 1Card to get a university computer account. This account will allow you to log in to university computers in labs, use the research computer stations in the library, and activate your free UH e-mail account.

Computer Facilities

Central Site

The Central Site is the primary computing lab for UH. This lab provides over 150 Macintosh and Windows based computer workstations, scanners, and training rooms. Central Site is located in room 58 of the M.D. Anderson Library basement. To use computers there you must present your Cougar 1Card and have a UH computer account.

Operating Hours: 24 hours a day, 7 days a week. Phone: 713.743.1570.

M.D. Anderson Library

Reference Area computers are located on the first floor in the M.D. Anderson Library. There are over 140 networked workstations which provide access to the library catalog, electronic resources and the Internet. Most of these require sign-in using the Cougar 1Card.

There are several computer labs available for use on campus. Most of these are open on weekdays from 9AM – 5PM. For a list of these labs visit <http://www.uh.edu/infotech> and select “Computer Labs” from the menu at the middle of the page.

Software

The UH has site licenses for several popular software programs. As a Fellow you are eligible to purchase, for a nominal fee, this software. Visit Cougar Byte in the University Center for further details.

E-mail

You may also establish an e-mail account by visiting room 116 PGH.
713.743.1145

The computers around campus require a UH account and password in order to login to use the computer and to access the Internet. You will also use your username and password to send and receive e-mail from a UH account. You will be issued your own e-mail address. With this account, you can check your UH e-mail from any location by logging on at the website: mail.uh.edu.

Online Resources

A. Houston Teachers Institute Website: <http://hti.math.uh.edu>

We’ve posted all of the curriculum units written since 1999. Our site also links to other Teachers Institutes.

This website also contains a link to the Yale-New Haven Teachers Institute web page, where they have posted most of the curriculum units their Fellows have written since 1978. The Web site also contains numerous Institute publications. You can also reach this page at www.yale.edu/ynhti.

B. University of Houston Website: www.uh.edu

This is a useful web page for Institute Fellows looking for campus maps, links to the library home page, and information about the resources on campus (computer labs, parking, hours of operation, maps and directions on campus, etc.).

C. Online Databases

The University’s library resources offer access to a wealth of databases, containing bibliographies, abstracts, and complete articles from thousands of magazines, journals, and newspapers. Learning how to use them can make researching and finding articles very easy.

These researching tools can be found on the main library’s EPC (Electronic Publications Center) workstations. These computer workstations are located on the first floor of the library. The default browser on the EPC computers in the

library will list general subject areas (such as “Humanities” or “Natural Sciences”), and you can choose the subject area you want to research. The computer will then provide you with a list of databases that have articles on your subject. You will find that most of the databases are easy to use, and allow you to search for articles by fields such as subject matter, journal title, year of publication, etc. From the EPC workstations, you can print all of the articles you find. The EPC stations are available whenever the library is open. These stations are available on a first-come, first-served basis.

The best place to access these databases is at the EPC in the library; however, some of these databases can also be accessed through the library’s home page at <http://info.lib.uh.edu>.

Computer Assistance

You can sign up for a Computer Workshop at the M.D. Anderson Library. These are usually held early in the semester. Call (713) 743-1050 for details.

The Department of Information Technology at the University of Houston also provides computer training in a range of areas. For course information and schedules go to http://www.uh.edu/infotech/php/template.php?training_id=18. For more general information about the IT Department visit www.uh.edu/infotech. If you have problems with a computer on campus or your account, call Information Technology Support Center/Help Desk at (713) 743-1411.

Preparing Your Curriculum Unit

8. GUIDELINES FOR WRITING A COMPLETE CURRICULUM UNIT

The material in this article is also posted on the HTI website—<http://hti.math.uh.edu>, under “Resources.”

A. The Value of Writing a Curriculum Unit

Houston Teachers Institute Fellows and Seminar Leaders should bear in mind that the production of the curriculum unit, while vital to the Institute’s program, is as much a means toward inspiring and encouraging participating teachers, as it is an end that provides new classroom materials for the teacher and his or her students. Moreover, those classroom materials will be available for teachers across the district and beyond.

We stress that public school teachers should write curricula for their own classrooms. Our main concern is the professional development of each teacher accepted as an Institute Fellow and, thus, each teacher’s development of new materials and approaches for classroom use. When they write a curriculum unit, teachers think carefully about the ways in which what they are learning in their seminars can be applied in their own teaching. Writing the unit allows the Institute experience to have a direct bearing on the teachers’ own classes. Each Fellow creates a unit related to the general topic of his or her seminar, reads independently to develop that unit, writes several drafts, and presents work in progress to the others in the seminar. The units that emerge reflect both the direction provided by the UH faculty and each teacher’s understanding of what will work for his or her students. The unit balances the academic concerns of the seminar with the Institute’s requirement that each Fellow give the seminar material a practical, classroom application, whether the Fellow’s students are in high school, middle school or elementary school.

B. Putting it in Writing: The Heart of the Institute Program

As an Institute Fellow, you are a scholar and a writer. The Curriculum Unit is a researched, scholarly piece of work that has a twofold purpose. The Unit allows you to use your seminar to full advantage in your classroom the next school year. Moreover, your CU is published and disseminated across the Houston Independent School District, and it is available to and read by teachers from all over the world. Your goal, then, is to meet the expectations of your school, HISD, and all of the teachers who will read your unit, and who are, therefore, your audience. Your readers expect a readable, useable, creative CU. To that end, we have developed the following **template** that will help you produce the CU that your colleagues at HTI, HISD, and your fellow teachers everywhere can read and find useful. Writing the Curriculum Unit will be a rigorous process that produces CUs that are responsive to both HISD curriculum requirements and to the Yale New Haven Teacher Institute model. The professional creativity that is the standard of the HTI Curriculum Unit is exhibited in the conception of and design of the program of study treated in the CU. Finally, this creativity is further demonstrated in the actual teaching of the CU and in its practical use by other teachers in the district and elsewhere.

Creating the unit begins with the prospectus and continues through the drafts to the final version. You are encouraged to be precise, thorough, and interesting—and that will require that you write in essay form rather than relying on outlines and bulleted lists. When you have an object in mind as you study the seminar topic, your interest in the

seminar will be more focused, and your efforts more productive. When you discuss your objectives in clear, polished prose, you prompt yourself to be more thorough and understandable. The process of writing makes you think more clearly about what you're doing. As a result, the finished product will be something very much your own, and something you will be able to teach with passion and conviction. We provide you with a variety of sources to help you with your writing—from the prospectus onward. If you need help, please do not hesitate to ask for it.

C. The Requirements for a Complete Curriculum Unit

The CU will be typed in 12 point Times New Roman and will be a minimum of 15 pages single spaced and a maximum of 20 pages single spaced. That page limit includes Works Cited. Please note that most paragraphs must be about 5-10 sentences in length (about 100-250 words) to allow for proper development.

The CU will consist of the following parts: (1) a brief **introduction**, (2) clearly stated **objectives**, (3) a brief **rationale** which contains concepts to be developed in the unit, (4) a unit **background** that is a sustained piece of narrative discourse rather than a bulleted list, (5) four fully developed **lesson plans** with methods of assessment and materials required, and (6) a **works cited section**. Those six sections must be in that order and have clearly identified section headings.

The section containing the **introduction** and **objectives** should be no more than two pages. The section containing the **rationale should be one to three pages** and **unit background** should be a minimum of eight to nine pages. The **lesson plans** and **bibliography** should be a minimum of five pages.

Please note that the term “narrative” here is used as a technical term denoting the fully developed sentence-to-paragraph and paragraph-to-complete text format. “Narrative” for this purpose is **not storytelling** in the sense of the term as it is used in literary discourse. Your aim is to write professional, polished prose. Your style should reflect your voice and should invite the readers’ attention. Readers should find your writing interesting and enjoyable.

- 1) **The Introduction** should be a minimum of one paragraph and no more than three paragraphs long (about 150-400 words). This section includes the demographic information about your school. The purpose of this section is to introduce your teaching assignment: grade level, type of school, (magnet, inner city, suburban, etc.) special concerns, (AP, IB, etc.) and even the surrounding area if it is important. You may characterize your students, your school, and yourself in your professional role, but only with the understanding that this information *must* be useful to the readers’ understanding of your project. The readers should know only what they must know about you and your school in order to understand your focus in this Curriculum Unit. This is not a section that requires any padding or excess, and no sections in the CU will require any excess information or extraneous embellishment.
- 2) **The Objectives** may be bulleted and numbered. They do not have to be. Complete sentences are more enjoyable to read. They must include the district numeration for identification, and you may wish to restate the objectives again at the end of the Unit in an appendix and include the district numeration there. Please remember that the

objectives will be restated and referred to in the lesson plans that follow. This portion of the Unit should be a maximum of one page in length.

How many TEKS or TAKS or project CLEAR objectives should be listed for the unit?

You do not need to list every possible objective that your unit may address.

It is obvious that an exhaustive list of objectives—those that are available online for teachers in the district, would be cumbersome. So, let this be your guide:

When you conceived of the unit originally, you must have had some sort of objectives in mind. Because you are a professional, you have chosen to write a unit on something that would be important for your students to learn. So, review the district or state objectives, find the 2, 3, 6, or 8 objectives that best address what you are planning to get across to the students. Choose the objectives that will be the ones you think are the most suited to your project. For some of you, this will be 3 or 4 objectives, for others perhaps 8 or even 10 may be what you will need to address. Ten (10) is the maximum number of objectives you should list in your unit. The point is that other teachers who will read your objectives will see what your objectives are and then conclude that they can adjust the unit to fit other objectives that are similar. There is no need to anticipate every possible objective that could be met with your unit. It would be deadly dull to write and even more dull to read. You should use your own words in your verbal statement of objectives in the **Objectives** section of your unit in order to give readers a clearer notion of where you are going with the lesson plans that come later.

We encourage you to use your own words because your conception of the unit is more creatively expressed than objectives stated in the state or district lists. Use your voice and your prose to get across what you want the students to learn. Then attach the numbers. If you wish to use the district or state description, that is acceptable but not encouraged.

When you write your lesson plans you may simply use the numeration of the previously stated objectives. Or you may simply state very briefly in your own words what the objective for that particular lesson is. Please do NOT recopy all of the listed objectives from the Objectives section of the unit in your lesson plans!

- 3) **The Rationale** should be a minimum of one paragraph and no more than three pages or 1,500 words. In this section you will describe what key concepts you intend to teach in the unit, what key questions you will develop, why you have chosen to teach this unit—in other words why what you intend to teach is important to your students, and what needs your students have that you are addressing. In this section you may also state why you have chosen this particular focus on the material. Again, readers must be able to readily see what is applicable in your CU to *their teaching situation*. That is, can this CU be modified for other teachers' needs or is it too specific to your special situation? Typically, Fellows strive to make certain that their colleagues in the profession can find their CUs useful.
- 4) **Unit Background** is the section devoted to your research and creative application of the material to the classroom. Avoid lengthy plot summaries here or long descriptions of information that the reader will have access to in your "Works Cited" section. Here you will describe to the readers what topics you are covering, the

concepts you are presenting, and what your research has yielded for your teaching unit. In this section you will refer directly to the lesson plans you will present later in the unit. Your readers will be interested in your unique incorporation of what you have learned into a useable set of lesson plans. The lesson plans will reflect the research you did in the seminar and what key information your research yielded that other teachers will need to know in order to teach that unit. Here, also, you will describe your classroom strategies and activities. **This section must be eight pages minimum and ten pages maximum, single spaced.** At this point your **total** CU will be a minimum of ten pages in length and a maximum of fifteen pages in length, single spaced. Please contact the Program Director if you anticipate that your unit may be longer or shorter than required.

- 5) **The Lesson Plans** are **fully developed lesson** plans with two to three clear objectives stated, materials described, procedures and activities described, and should also include a section that describes the evaluation/assessment. Here, again, you are showcasing what is novel and creative about the lessons you have designed in your curriculum unit. There is a minimum standard number **of four lesson plans** in this section. The lesson plan section should be no shorter than three pages and no longer than nine pages, single spaced. Please be certain that if you include diagrams and illustrations that they can be easily formatted, and please do not ‘pad’ your lesson plans with extraneous lists of materials, vocabulary words, etc. Include materials and vocabulary that are necessary to the lesson, however. Remember, like everything else in the CU, these are your original work; lesson plans may not be copied in any form from any source. You may use a lesson plan format in this section rather than the narrative format. Your goal is to make these readable and useable for your readers.
- 6) **Works Cited** is the list of all works you cited. You must document all material you borrow from other sources, facts, opinions, quoted, paraphrased, You are required to place in proper MLA form the data that will allow your reader to find easily the sources you refer to in the text of the unit. If you use a source and refer to it, it will be in the Works Cited section. If you found other sources that you did not cite but think they would be helpful to other teachers, you may include those listed separately as an annotated bibliography in the form of Supplemental Resources. Your works cited should be complete, but ideally should not bring your paper to over the maximum length, which is a total of 20 single-spaced pages.
- 7) **Appendix or Appendices:** This extra section or sections is used to present your objectives with district enumeration, or to list additional resources.

Synopsis (Required)

At the time of submission of the final version of the unit in early June, you are asked to write a synopsis or summary of the unit of 200-250 **maximum** words in one paragraph. This should include a description of the topic of your unit, the type of activities and methods you will use to teach this topic, and anything pertinent or unique you feel your unit brings to the subject matter. The synopsis will appear as part of the unit on the HTI website when the units are published there.

D. An Incentive to Do Your Best: The Units Are Published

HTI publishes the curriculum units, they are distributed to the District's elementary, middle, and high schools through HISD's IMPACT II Teacher Network, and they are also available on HTI's website. Teachers from all over the city, state, and abroad use the units available online. Because they represent a tangible end-product of your participation as a Fellow, and because of their public, published nature, you are urged and encouraged to produce your very best work. Your Seminar Leader and your colleagues will, like you, be proud of your work in the institute.

E. But How Do I Begin?

Everyone has his or her own method of focusing on a task at hand. Writing a curriculum unit requires your focus on what you want to teach to your students next year using the insights and knowledge you are gaining in your seminar. You will find the writing much easier when you decide how to answer a few important questions. Please apply the heuristic below as part of your prewriting process.

- i. **What is my aim?** What will the unit teach? Why it is important to teach this topic? Begin with something as simple as a descriptive title and with an explanation that would make sense to a teacher of students of a similar age and subject.
- ii. **What is my purpose?** How will this unit satisfy the needs of my students? What objectives do I have for this unit? Fellows should explain how learning about this topic and doing the work of the unit will contribute to students' personal and academic growth and to their development of certain academic skills.
- iii. **Who is my audience?** For whom am I writing this unit? Most teachers realize that they are creating a unit that their colleagues will want to use in their own classrooms. This is not a personal narrative that will be used in your classroom only. It is written and published for a wider audience. Keep that audience in mind when you write. What does another teacher really need to know? How little and how much? "Talk" in your writing to your colleagues.

Finally, when you are at the point of drafting your four lesson plans, examine your unit and ask the following questions:

- iv. **How will I teach this unit?**
- v. **How can other teachers teach this material to their students?**

You should explain the teaching strategies you will use when you teach your unit and the type of assignments your students will do. You may explain a group project the students will do, how you will instruct essay writing, how you will conduct experiments with your students, how you will handle discussion, or any number of approaches to teaching the material. **Your creativity as you design your lesson plans is one of the most rewarding aspects of writing your curriculum unit. Moreover, Fellows find it very satisfying to see their work published the following year.**

F. The Importance of Deadlines

Because of the importance of the writing process and the care with which the Institute schedule has been designed, it is very important—indeed, essential—that you meet all deadlines and meet your Seminar Leader at the appropriate conference periods.

It is a challenging schedule, and you may, at one time or another, feel that it is difficult to keep up. The key is to get started early on each stage. The HTI experience is a semester long project, and the writing cannot be accomplished overnight. **Please do not procrastinate.** We hope you will seek advice and aid from your colleagues in doing each stage of the unit. You should not hesitate to talk with the Seminar Coordinator, the Seminar Leader, or a Writing Mentor.

G. The Prospectus

The first stage of development is the prospectus, and the deadline for submission is in early February, three weeks into the program. A prospectus is a report describing a forthcoming project.

When you applied to the Institute, you answered questions about what you looked forward to doing if you became an Institute Fellow. The first step toward creation of a curriculum unit is to examine your answers and determine which responses remain valid. What you found interesting (Question 1) might interest your students and enrich their learning experiences (Question 4). Your curriculum unit will involve examining one or more of the topics you described (Question 2) and answering some of the questions or reading about the subjects you mentioned (Question 4). You may expand these sections and/or add new topics, so that your description increases in length from the original page or two to at least three double spaced pages. To this you attach a bibliography. That is the prospectus.

It is entirely possible that having spent seminar sessions with you leader and having spent some time researching possible ideas, you may have decided on a different approach to your subject. With the submission of your prospectus, you have taken time to think seriously about what you are doing, and what shape and direction your Curriculum Unit will take.

The bibliography should consist of a number of books, articles, web sites, *etc.* which you have identified as important to examine as sources of information for your project. These may have been gathered independently or through the assistance of the Seminar Leader. You may wish to begin the annotation at this point because you will find that annotation very useful. The annotation—a note following the bibliographic listing—simply describes why the selection might be valuable for you to examine. At this stage a “Works Cited” section will usually not be necessary, but if you do use quotations in the prospectus, you should begin a “Works Cited” section as the first section of the bibliography. We strongly recommend that you format your bibliography according to MLA style at this early stage in order to become familiar with the formatting and citation style (This handbook has an extensive list of examples of bibliographic entries).

You may meet with your Seminar Leader in a one-on-one meeting regarding the development of the prospectus, and you will have the opportunity to attend the Saturday Curriculum Unit Writing Workshop to obtain assistance with the prospectus.

H. When Fellows Wish to Change the Topic or Focus of Their Units

As noted above, it may be that you wish to change your plan after becoming a Fellow and no longer wish to create a curriculum unit along the same lines as described in your application. Such a change is quite permissible so long as the new topic has a strong relationship to the seminar topic and to the subject and grade level of the students you teach, and so long as you consult the Seminar Leader about the change. You will have to meet your prospectus deadline.

I. On Examples of the Prospectus, First Draft, and Completed Unit

We have included an example of a prospectus, a first draft, and one completed unit by an HTI Fellow in this Handbook. These examples are not meant to be rigid forms you must follow; they are offered to help you with ideas and to give you some sense of the scope of the requirements for these stages of the project you must complete.

The entire HTI output from the HTI Classes from 1999 onward may be found online by going to the HTI Web site at <http://hti.math.uh.edu>, and clicking “Curriculum Units.” Hard copies of these units are shelved in UH’s M.D. Anderson Library (at call numbers LB1570 H68 1999, LB1629.T4 H68 2000 and LB1629.T4 H68 and so forth for each year). Hard copies of the units are also available to teachers through the HISD IMPACT II office (please call 713.892.7115 for more information). Finally, many HISD school libraries have the units published by HTI since 1999 on their shelves; check with your school librarians.

J. The Time between the Prospectus and First Draft

During the approximately four weeks between the prospectus submission date and the first draft deadline, you are expected to be working on your draft, even while you read materials and otherwise prepare for discussions in the seminar on the general seminar topic.

Preparing the first draft will include such work as reading among the selections in the prospectus’ annotated bibliography, outlining, and drafting the 10-page, double-spaced essay that is required at the first draft deadline. Seminar Leaders are asked to be aware of Fellows’ workload and to inquire regularly among them regarding their progress both in learning about the subject and in preparing the first draft.

The Institute will offer a second Saturday Curriculum Unit Writing Workshop about a week before the first draft is due. This lasts from 9 AM to 2:30 PM and will be staffed by the Institute’s Writing Mentor staff. All Fellows are encouraged to attend. The Institute’s Workshops and Mentor Program exist to aid the Fellows, but each Fellow should remember that the first and main source of guidance and support is his or her Seminar Leader.

K. After the Prospectus: Continuing to Share Work-in-Progress

We ask each seminar to dedicate times during the length of the seminar when Fellows share progress on their projects. How this is done is up to each seminar. Most often seminars have chosen to dedicate a substantial part of a meeting just after the first drafts have been submitted to share work-in-progress and then two later meetings of the seminar program for similar sharing of the second draft.

As the units become lengthier and more developed, it is often better to distribute a one-page summary or synopsis, or short sample, rather than giving out entire drafts, unless the seminar is broken down into groups of three or four, and each Fellow needs only to read the drafts of two or three others. An easy way to receive copies of the work of others in the seminar is to use the Internet and e-mail—something the Coordinators may facilitate.

L. Using Copyrighted Materials in Your Curriculum Unit

As you begin to prepare your units, you should read the section in this Handbook entitled “Use of Copyrighted Materials in Your Curriculum Unit” to make certain you follow Institute requirements concerning the use of copyrighted material. In fact, you should consult these guidelines early in the writing process. It may be necessary for you to contact the publisher of materials you wish to use in order to obtain permission to quote longer passages, poems, to use charts, pictures, maps, and so on. This is also true of charts, pictures, drawings, photographs, and maps found on the Internet.

The Institute will not accept units that contain copyrighted materials of over a few lines for which you have not obtained prior authorization. Because of delays you may encounter in obtaining permission from copyright owners, you should seek permission well in advance of completing your unit. We suggest that you write for permission while preparing your first draft. Consult your Seminar Leader, Coordinator, Writing Mentor, or the HTI office if you need advice on copyright matters. The handbook section on Curriculum Writing is the first place to seek guidance. Remember that quoting passages longer than a short paragraph may require copyright permission. Ask if you are in doubt.

In all cases, copyrighted, uncopyrighted or expired copyrighted materials that you use must be properly credited in the text of your unit and in the bibliography at the end of the unit. Please see the examples of properly giving credit to sources in the documentation section of this Handbook. See also the previous passage on academic honesty.

“Fair Use”

For more on fair use of copyrighted materials, please see the handbook. You are free to quote passages of limited text (a few lines), so long as you credit the source. In these cases, copyright permission is not necessary.

M. Academic Honesty and Plagiarism

The Institute provides a section in this Handbook on properly acknowledging sources. We take our guidelines concerning academic honesty very seriously, and as a Fellow you must strictly follow them. Failure to cite a source or several sources (plagiarism) is a serious breach of academic honesty and can have a variety of ill effects. First, the Houston Teachers Institute will not publish a curriculum unit that contains any plagiarized material. If your unit cannot be published because of plagiarism, you cannot receive your Fellowship stipend of \$1,000.

In the unlikely event that plagiarism goes undetected by our editors, because our curriculum units are published in both paper copies and on the Internet, a person who plagiarizes leaves a permanent record of his or her dishonesty. Some years later at the time of promotion or possible appointment to an administrative post, the plagiarism may be uncovered by those investigating the former Fellow’s credentials. The former Fellow will quickly discover the critical importance educators give to academic honesty. There

is no statute of limitations on plagiarism; it will stay with you for your entire career waiting to be uncovered by a future employer, critic, or enemy. Do not open yourself to the personal vulnerability of plagiarism. Ignorance of the rules governing what constitutes plagiarism is no excuse, nor is it possible to excuse plagiarism as an omission or honest mistake.

Plagiarism can come in a variety of forms: as an unacknowledged verbatim quotation, as the mixing of paraphrase and unacknowledged quotation, as an unacknowledged paraphrase and/or use of ideas, and finally as the use of non textual materials without acknowledgement, such as a map, photograph, musical score, web page, table, etc.

If a Fellow obtains information or ideas from an outside source [be it web site, book, newspaper, CD, audiotape, videotape, map, painting, poem, photograph, magazine and so on] that source must be acknowledged. Be certain to set off quotes properly.

N. The First Draft

The first draft builds on the prospectus and on the advice the Seminar Leader gives each Fellow based on the prospectus. Your research and reading after the prospectus has been returned should be guided largely by the prospectus and the Seminar Leader's response to it.

Requirements for the First Draft

The first draft should be at least 10 double-spaced pages in length and Fellows should take care to keep track of sources, (names, page numbers, titles) from which they draw, always giving credit for text and ideas borrowed from others for their own project. Remember that your final unit must be **15 pages minimum single spaced**. The first draft is a good time to calculate how much you must develop your unit in order to achieve the required length by the time your final unit is single spaced. Along with your First Draft you will be turning in your more expanded Annotated Bibliography. *Your bibliography should now contain a first section entitled "Works Cited." A second section under the heading "Supplemental Sources" consisting of resources for teachers and resources for students should now also be "under construction."* Your Seminar Leader will read about your research and make suggestions.

As in the prospectus, the first draft will explain what the unit will teach, why it is important to teach it, and how you will teach it. Creating and perfecting four or more lesson plans for the final version of the unit can come later—at the second draft stage, though some early sketching out of these may, of course, come earlier.

First Drafts, Like Final Products that Flow from them, Vary in Scope

You can see many examples of how final units look by consulting examples on the HTI Web site. If you will remember that these units all were once first drafts, you can gather or imagine in some sense the variety of approaches that can be taken in developing your own first drafts. Also, please see the first draft example in this Handbook.

In the example of the first draft and in the finished unit in this Handbook and in other finished units you'll find elsewhere, you'll see that Fellows discuss what they have learned about the subject and how they will share it with their students. They also may explain who their students are, their own inspiration for the unit, the material that

students must learn before beginning their unit, special teaching techniques they will use, how they organize group work, the types of assignments they will give, *etc.* Remember, the units are, first of all, an opportunity for you to consider carefully how you will teach the students you know best—your own. At the same time, you are writing for an audience of your peers and colleagues in the profession. Keep in mind that what you are proposing should be useful.

While one of your colleague’s first drafts—and the unit that eventually flows from it—may be developed on a very narrow theme that will require only five class days to teach; another Fellow’s draft might be designed to cover wide themes of the seminar topic meant for over half a semester of a teacher’s time with the class. Whatever the curriculum unit’s breadth or the age of the students to be taught, the first draft is the framework out of which the final curriculum unit will emerge. Past Fellows have sometimes found it helpful as they develop their unit to pretend they are explaining their unit to another teacher; try this approach if you feel it will help get you moving.

Remember: don’t procrastinate!

O. The First Draft and the Assistance of Seminar Leaders

All of our Seminar Leaders are experienced in the writing of clear, concise prose. You should not hesitate to go to the Seminar Leaders, then, for guidance. It is through the very act of putting these things down on paper and then discussing them with your Seminar Leader that you can draw the greatest benefits from the HTI seminar.

The Seminar Leader’s encouragement and guidance are vital at this time, and these may come in the scheduled one-on-one after the first draft is submitted. One-on-one meetings between you and the Seminar Leader are crucial for building rapport and for getting key information, guidance, and support in the writing process. In some cases Fellows may need an extra one-on-one meeting with the Seminar Leader between the first and second draft due dates.

P. After the First Draft is Completed: A Critical Time

The time between the first and second drafts is the time for the most significant work in writing the units. Once a Seminar Leader has read and commented on the first draft, has returned it, and has met with you to discuss the effort, you should be ready to move on toward the more complete version of the unit. You have the advantage of the Seminar Leader’s “coaching” to point you to things you need to learn or add to your discussion, and you have your returned first draft to guide you to correct errors of documentation or prose composition. At this point you should consult the standards for writing a curriculum unit and follow them without the Seminar Leader’s prompting, asking questions for clarification when you need to. As you work with your Seminar Leader on your first draft revision, you will begin to see the shape and scope of your finished curriculum unit.

Q. The Second Draft

Requirements for the Second Draft

Your unit should now be a minimum of **30 double-spaced pages or 15 single-spaced pages in length**—this is the minimum length required for the final product. This length includes the lesson plans and bibliography. **(Some Seminar Leaders may prefer to read**

double-spaced second drafts.) Fellows should have significantly improved, focused, and developed their first draft essay, adding or refining material that they have learned from the seminar, from their research, and from the advice offered by their Seminar Leaders. The essay should be well ordered and clear with one sentence leading coherently to the next, and one paragraph following logically from another forming an informative, precise discussion of what the unit will teach, why it is important to teach it, and how the teacher will teach it.

The second draft—like the final unit due in early June—should include **at least four lesson plans**. You should write your lesson plans substantially in narrative form, not in bullets or outlines, so that another teacher may understand fully your intention as you move from one point to the next in teaching the lesson. When materials are presented using bullets or outlines, they should be filled out with complete sentences of explanation. You will want to refer to and use standard district section titles for lesson plans such as *Objectives, Assignments, Evaluation, etc.*

Fellows should avoid including handouts and worksheets as part of their units; it is preferable, instead, to describe any handouts or worksheets you plan on using with their lessons. For example, if you plan to ask students to complete a worksheet that contains questions, you should list examples of the questions that will be on the worksheet, rather than producing facsimiles of such sheets. **Copies of handouts from commercial or Internet sources are unacceptable.**

You may wish to use power point presentations in your classrooms, and you may wish to note that in your lesson plans, but be aware that we cannot put those on our web site nor can we print them in our published volume. Do not turn in your power point slides with your unit. We cannot put clip art on the web site nor can we print it in our published volume. Please understand that when you add these things we must spend extra time and effort reformatting your unit and removing the parts we can not print.

In the second draft, you should begin your annotated bibliography with a section entitled “Works Cited” which should include bibliographical entries for each source you quoted in the unit. Under a second heading entitled “Supplemental Sources” you should include all sources not placed under “Works Cited.” These are works that you consulted or examined that you are now listing for the use of teachers or students.

R. Creating an Annotated Bibliography

Because HTI has chosen the **MLA style of citation**, all annotated bibliographies should begin with a section entitled “**Works Cited.**” Under a second heading entitled “**Supplemental Sources**” Fellows should list all the other books, articles, websites, films, audio recordings, photographs, maps, charts, etc., which were consulted or examined in the research for the text but were not cited in the unit. Obviously, all books and other sources consulted will not always be cited in the text.

Thus, the first section of the annotated bibliography is strictly for works you actually quote in your unit; a second section contains works you consulted and examined enough to consider very relevant. This second section may be subdivided into sub-sections of resources for teachers, resources for students, filmographies, discographies, and so on.

Traditionally, the Institute has recommended Fellows provide readers with a bibliography of relevant texts for teachers and another for such texts applicable chiefly to students. These sub-headings go under “Supplemental Sources.”

Some Fellows have chosen not to have separate bibliographies for teachers and students and instead have used topical subdivisions.

Note: If your entire seminar and the Seminar Leader agree to use a style other than the APA style manual, such as the *Chicago Manual of Style*, or another accepted style because the discipline or area of study typically requires that style, **then the Director and the Writing Coordinator must be informed of this in writing before the final units are turned in. The Seminar Coordinator should write a memo to the Director and Writing Coordinator and copy the Seminar Leader stating what manual will be used.** Every unit in the seminar must conform to the same style. The Seminar Leader will have to make certain that the Coordinator, the Writing Mentor, and the Fellows understand the style and have access to style manuals for that format.

This handbook provides an extensive list of examples of how to cite various sources. The examples of bibliographies found in the sample draft and final unit included this Handbook will be useful, too.

On Bibliographical Annotations and Citations

The purpose of a bibliographical note or annotation is to provide the reader of the bibliography with a reason for consulting the individual sources. The note provides reasons why you chose to include this particular work in your bibliography; there should be a reason for including each work in the bibliography. The Institute does not encourage Fellows to fill their bibliographies with texts they have not spent some time investigating. **Please do not include works in your bibliography that you have never examined.** More is *not always* better. Please be thorough in your listing, however. A good example of annotations can be found in the example of the final unit included in this handbook.

S. Final Requirements and the Final Version of the Unit

The final version of the curriculum unit submitted in early June is the final version. That is, there will be no returns to the Fellows for improvements. If the final submission fails in significant ways to meet the minimum requirements, the unit will not be published and the Fellow will be ineligible for the Fellowship stipend.

9. EXAMPLES OF PARENTHETICAL DOCUMENTATION AND BIBLIOGRAPHIC ENTRIES

Parenthetical Documentation: When to Cite and How to Cite

When to Cite

Writers must always acknowledge the source of their direct quotations, paraphrases of sentences or paragraphs, and ideas not necessarily quoted verbatim but nevertheless clearly borrowed. This includes the use of photographs, illustrations, and charts. Properly citing sources is particularly critical when writing the curriculum unit because it will be published and read by numerous people. Some Fellows may ask, “When do I have to cite a source and when is it unnecessary? For instance, if I write that Abraham

Lincoln was President during the American Civil War, is it necessary to cite a source for this information? I know this and cannot remember where I first learned it. But if I use a familiar proverb: ‘look before you leap,’ is it necessary to find out who first said this to acknowledge the source?”

The answer to both of those questions is “No” since in both cases the information is considered common knowledge.

It is not necessary to cite a source for common information such as the following fact: Colombia is a country in South America. However, specific information does need acknowledgement as you can see in this example: according to its most recent census, the population of Colombia is 17,860,536 (*World Almanac*, 173). To state that Venezuela is a country with rich oil reserves is to state a commonly known fact and a source need not be cited. To say that Venezuela exported over 25 billion dollars worth of crude oil last year is sufficiently specific to require a source for the information.

Generally speaking, if you are uncertain whether information requires a source or not, it is best to go ahead and give your source or sources.

Finally, it should always be remembered that citations have a twofold purpose. They serve to protect you as writer from charges of plagiarism, and they serve to help your readers to find the source of information that you have consulted or quoted. Please use discretion and forethought in preparing your curriculum unit and handle outside supporting material in an open and transparent fashion. Do not take credit for words or ideas which are not your own and which might otherwise be thought by most readers to be your own. Be helpful to your colleagues who will use your unit and give complete and accurate information about your sources.

How to Cite

The Houston Teachers Institute follows the Modern Language Association (MLA) Handbook in citing materials. MLA uses what is referred to as parenthetical citations rather than footnotes or endnotes. Therefore, in your curriculum unit you should never use footnotes and only occasionally use endnotes under special circumstances. In most instances simple parenthetical citation after the quoted or paraphrased material is sufficient. Thus, if you wrote the following statement: “Goldberg suggests that children begin to form number skills as early as eighteen months (47).” Your parenthetical citation means that on page 47 of a book entitled *Early Arithmetic* by Joseph Goldberg, which will be listed on your Works Cited page, a statement to this effect is made. Note that the period follows the closing parenthesis.

Prose material less than four lines long when quoted in the curriculum unit, should be included in the text with quotation marks before and after the directly quoted material followed by a parenthetical citation. If the quotation is more than four lines long, it should be set off as a block quotation. Begin on the next line after indenting one inch or ten spaces and do not use quotation marks. With a block quotation, the period goes at the end of the quotation, not after the parenthetical citation.

Poetry of three lines or less should be included in the text with quotation marks before and after the directly quoted material followed by a parenthetical citation. Line divisions are noted by a /. Poetry more than three lines should be set of as the block quotation

above. Begin on a new line, indent one inch or ten spaces, and do not use quotation marks. Reproduce the poetry as it appears in the book from which you are taking the quote.

These are some general rules for using parenthetical documentation:

- a. In citing sources, you should list the author’s last name and the page number (Smith 119). An Internet source is considered to be a non-paginated source, so no page number is needed (Curry).
- b. If an author has more than one source cited, then list the author’s name, short title of the work, and page (Anderson, *Calliope’s Sisters* 277).
- c. If the author’s name is mentioned in the paragraph, then only the page number is needed (45).
- d. If you are citing several sources at the same place, give the author’s last names, page number, semi-colon, and the next author and page (Smith 27; Jones 42).
- e. If there is no author listed, then use a short title of the book (The Jamestown Flood 95) or article (“Garden with Insight” 22). With an Internet source, there would be no page number listed (“Soil Porosity”).

For more complete information on parenthetical citations go to:

<http://www.wisc.edu/writing/Handbook/DocMLA.html>

or consult the MLA Handbook for Writers of Research Papers, 6th edition (2003). Also, note the use of parenthetical documentation in the sample completed unit in Section 19 of this handbook.

A useful website for MLA form is South Dakota State University Library’s MLA Form Quick Guide: <http://lib.sdstate.edu/lib11/QuickGuides/MLA.pdf>

Generally speaking in parenthetical citations you are not to repeat or duplicate information so that if you give the author’s name in the text, you do not repeat it inside the parentheses. Parenthetical citations are not pedantic and quite easy to use.

The Annotated Bibliography

A large number of Fellows say that their primary motivation for being a part of the Houston Teachers Institute is that their work is published for the rest of the world to use. We feel this is a great opportunity for our Fellows and also for the many other teachers who will have these curriculum units as a resource. However, with the benefits of publication, the HTI Fellow also accepts the responsibility to acknowledge those books, essays, web sites, and any other media that have assisted him or her in writing the curriculum unit. This is the purpose of your annotated bibliography.

Without a properly constructed bibliography, you can be found guilty of plagiarism – and so can the Institute.

Houston Teachers Institute curriculum units are formatted according to MLA (Modern Language Association) style. There are many manuals and guidebooks published by MLA that are widely available and most of them are very user-friendly. For your convenience, however, we have listed several examples of different types of sources and how to properly document them in your annotated bibliography. Below each source type,

you will find an example of a proper citation. To avoid confusion, the example will be followed by an explanation of the items in the citation.

Also, notice that if a bibliography entry is longer than one line, it is indented by ¼" thereafter.

Note: Many of the following examples come from *MLA Style Manual* by Joseph Gibaldi, and *Sources: Their Use and Acknowledgement* by Dartmouth College's Committee on Sources.

Some Things to Remember

This formatting of author names (last name first, the use of *et al.* etc.) applies to other forms of media as well. If a web site is composed by four authors, it will be listed with the term *et al.* just as if it were a book.

You may have noticed many U's and P's in the names of publishing companies in the examples. These stand for "University" and "Press" respectively. Please abbreviate these in your own entries as well. For example, if a book were published by the University of Texas Press, you would simply write "U of Texas P."

Also, you may notice that the cities where the publishers are located are not usually listed with a state. If the city cited is a major city, there is no need to write the state as well. However, if the city were Springfield for example, you would need to write Springfield, IL or Springfield, MO or whichever one it happened to be.

Books

Citing a Book by a Single Author

Cressy, David. *Birth, Marriage, and Death: Ritual, Religion, and the Life Cycle in Tudor and Stuart England*. New York: Oxford UP, 1997.

Author's name. *Title of Book*. City of Publication office: Publishing Co., year published.

A Book with Two or More Authors

Notice that, for the first author listed, the last name is put first as before. However, the names of authors afterward are listed first with the first name and then with the last.

Two Authors

Jakobson, Roman, and Linda R. Waugh. *The Sound Shape of Language*. Bloomington: Indiana UP, 1979.

Authors' names. *Title of Book*. City of publisher's office: Publishing Co., year published.

Three Authors

Rabkin, Eric S., Martin H. Greenberg, and Joseph D. Olander, ed.* *No Place Else: Explorations in Utopian and Dystopian Fiction*. Carbondale: Southern Illinois UP, 1979.

Authors' names. *Title of Book*. City of publisher's office: Publishing Co., year published.

*see Books with an Editor or Translator below

More than Three Authors

When there are more than three authors, you need only list the name of the first author followed by *et al.* This is a Latin term that simply means "and others." Because it is a Latin term, it will be written in italics.

Gilman, Sander, *et al.* *Hysteria beyond Freud*. Berkeley: U of California P, 1993.

Author's name, *et al.* *Title of Book*. City of Publisher: Publishing Co., year published.

Books with an Editor or Translator

Editors and translators are noted in a bibliographic entry with "ed." and "trans." respectively. Sometimes textbooks or anthologies are not written by an author, but rather are compiled by an editor. In this case, the editor or editors' names are placed where the author's name would be (see example above for books with three authors). However, if all the works in an anthology or collection are by the same author, or if the book is a translation of an author's work, the author's name remains where it is and the editor or translator's name is placed after the title of the book.

Rossi, Aldo. *The Architecture of the City*. Trans. Diane Ghirardo and Joan Ockman. Cambridge: MIT P, 1982.

Author's name. *Title of Book*. Translator's names. City of Publisher: Publishing Co., year published.

If there is an editor AND a translator, put the translator's name before the editor's name.

A Work within a Book

Often works are contained in anthologies such as the Norton series. With these it is important to list not only the individual work, but also the whole book as well.

Engels, Dagmar. "The Politics of Childbirth: British and Bengali Women in Contest, 1890-1930." In *Society and Ideology: Essays in South Asian History Presented to Professor K. A. Ballhatchet*. Ed. Peter Robb, et al. Delhi, India: Oxford UP, 1993. 222-46.

Author's name. "Title of Work." In *Title of Book*. Editor of Book (if applicable). Publishing City: Publishing Co., year published. Pages where work is found in book.

An Introduction, a Foreword, or an Afterword

Drabble, Margaret. Introduction. *Middlemarch*. By George Eliot. New York: Bantam, 1985. vii-xvii.

Author of Introduction. State whether it is an Introduction, Foreword, or Afterword.
Title of Book. By Author of Book. City of Publisher: Publishing Co., year published. Pages where intro., foreword, or afterword can be found in book.

A Republished Book

Dreiser, Theodore. *Sister Carrie*. 1900. New York: Bantam, 1982.

Author's name. *Title of Book*. Year originally published. City of current publisher, year your version was published.

Government Publication

United States. Cong. House Committee on Commerce, Subcommittee on Health and the Environment. *Health Care Reform: Reforming the Small Business Marketplace and the Individual Health Insurance Market*. Washington: GPO*, 1996.

Government. Particular Institution within that government. *Title of publication*. Place of publishing: Publishing Co., year published.

*GPO stands for Government Printing Office.

A Dissertation

Valentine, Mary-Blair Truesdell. *An Investigation of Gender-Based Leadership Styles of Male and Female Officers in the United States Army*. Diss. George Mason U, 1993. Ann Arbor: UMI, 1993. 9316566.

Author's Name. *Title of Dissertation*. Diss.=dissertation and name of university, year written. City of publisher: UMI=University Microfilms International, Year published. Order number.

If the dissertation was published by UMI, you can put the order number, but it is not necessary. If it was not published at all, leave off all information after the year it was written.

Pamphlets

Pamphlets follow the same rules as a book. If there is no author, simply start with the title.

Articles

An Article in a Scholarly Journal

Henderson, Andrea. "Passion and Fashion in Joanna Baillie's 'Introductory Discourse.'" *PMLA* 112 (1997): 198-213.

Author's name. "Title of the Article." *Journal Title* Volume Number (year): inclusive page numbers.

An Article in a Reference Book

At times you may need to cite an entry from an encyclopedia or dictionary. Sometimes an author is listed for the article. In that case you would put the author's name before the article title. But often no author is listed.

“Azimuthal Equidistant Projection.” *Merriam-Webster’s Collegiate Dictionary*. 10th ed. 1993.

“Article title.” *Title of Reference Book*. Edition. Year published.

An Article in a Newspaper

Crutsinger, Martin. “Leaders Exit at Fannie Mae.” *Houston Chronicle*. 22 Dec. 2004: D1.

Journalist’s name. “Article Title.” *Name of Newspaper*. Date: page.

Note: If the article is an editorial, write “Editorial” between the name of the article and the name of the newspaper. If it is a letter to the editor, write “Letter” in the same place.

An Article in a Magazine

Magazine articles are formatted almost identically to newspaper articles.

Kaminer, Wendy. “The Last Taboo.” *New Republic*. 14 Oct. 1996: 24+.

Writer’s name. “Article Title.” *Name of Magazine*. Date: page number.

The Internet

Some find citing Internet sources difficult, but it needn’t be so. For most web sites, the format is very simple. **Do not just list the web address by itself!**

Author of web site material. “Title of Article.” *Name of Web Site*. Year posted.

Sponsoring organization. Date you accessed the web site. <<http://www.the full web address of the site>>.

If any of these items is not available, it can be omitted. However, the fewer items you find, the less credible the source usually is. Here are several examples of web sites with no individual author listed:

Simpson’s Diversity Index. 2002. Offwell Woodland and Wildlife Trust. 6 Apr. 2004. <<http://www.offwell.free-online.co.uk/simpsons.htm>>.

“Water on the Space Station.” *Space Daily*. 2001. Space Media Network. 16 April 2002. <<http://www.spacer.com/news/iss-01p.html>>.

Concentrating Solar Power and Sun Lab. 2002. Department of Energy. 12 April 2002. <<http://www.eren.doe.gov/csp/>>.

References on the Web

Many Fellows like to take advantage of encyclopedias and dictionaries on the Internet, and that is fine. For your bibliography entry for such articles, the format is a sort of amalgamation of a reference article citation and a web site citation.

“Fresco.” *Britannica Online*. Vers. 97.1.1. Mar. 1997. Encyclopedia Britannica. 29 Mar. 1997. <<http://www.eb.com:180>>.

“Title of article.” *Online Resource’s Name*. Version (if applicable). Date put on the web (if you’re able to find it, otherwise just the year). Organization sponsoring the reference site (in this case it is the same as the name of the reference source). Date you downloaded the information. <<http://www.the full web site URL>>.

Other Media

A Radio or Television Program

“Frederick Douglass.” *Civil War Journal*. Narr. Danny Glover. Dir. Craig Haffner. Arts and Entertainment Network. 6 Apr. 1993.

“Title of episode or segment (if necessary).” *Title of the Program*. Narrator or performer information if deemed important. Director. Name of the Network. Date of Broadcast.

A Sound Recording

Holiday, Billie. *The Essence of Billie Holiday*. Columbia, 1991.

Artist name. *Title of album/cd/cassette*. Record Label, year released.

If you are citing a specific song, put it in quotation marks after the artist’s name.

Simon, Paul, and Milton Nascimento. “Spirit Voices.” *The Rhythm of the Saints*. Warner Bros., 1990.

Artists’ names. “Title of Song.” *Title of Album*. Record Label, year released.

A Film or Video Recording

All that is required are the title, director, distributor, and year of release. Performer information is optional.

It’s a Wonderful Life. Dir. Frank Capra. Perf. James Stewart, Donna Reed, Lionel Barrymore, and Thomas Mitchell. RKO, 1946.

Title of Film. Director. Major Performers. Distributor, year.

A Live Performance

Hamlet. By William Shakespeare. Dir. John Gielgud. Perf. Richard Burton. Shubert Theatre, Boston. 4 Mar. 1964.

Title of Performance. By original writer/composer. Director of performance. Performer(s). Venue name, City. Date of show.

A Musical Composition

Beethoven, Ludwig van. Symphony no. 8 in F, op. 93.

Composer. Name of piece.

Notice the title wasn’t italicized. That is because Symphony no. 8 isn’t technically a title. If it were an actual title, such as *Symphonie Fantastique*, it would be italicized. You would italicize a work such as the one in the example only if it were a published score. If you wish to indicate when the composition was written, place the date immediately after the title.

A Work of Art That You Have Referred to in the Text of Your Unit

Cassat, Mary. *Mother and Child*. Wichita Art Museum, Wichita. American Painting: 1560-1913. By John Pearce. New York: McGraw, 1964. Slide 22.

Artist's name. *Title of work*. Museum or private owner where work is housed, city.
Title of Book. Author of Book. City of book's publishing: Book's publisher, year.
Page, slide, or plate number.

The example above is a citation that is used when you refer to the work itself in your paper. Please remember that you cannot include copyrighted photos of works of art in your paper.

A Lecture, a Speech, an Address, or a Reading

Atwood, Margaret. "Silencing the Scream." Boundaries of the Imagination Forum.
MLA Convention. Royal Oak Hotel, Toronto. 29. Dec. 1993

Speaker. "Name of speech.*" The Meeting. Sponsoring organization (if applicable).
Location. Date.

* - If the presentation has no title, write simply "Address, Lecture, Keynote speech,
Reading," etc. depending on what type of presentation it is.

Some Hints and Tips

Many find it helpful to keep index cards for each of the sources they use. As you check out books at the library, find the bibliographic information and write it down in a specific location (index cards or a special notebook for sources). This way, you will have the information at hand and won't need to go searching for the source at the library or online.

Also, as you take notes from your sources, write down the page numbers the information came from directly in your notes. When you write your unit you won't need to flip through the book trying to find where your quotes and ideas came from.

Remember, every source that you use must be included in your annotated bibliography. If it is mentioned (cited) in the text, it must be listed under the Works Cited section of the bibliography.

Finally, if you are unsure about how to cite a particular source – ASK. That's what Mentors, Coordinators, and Seminar Leaders are there for – to help you.

10. USE OF COPYRIGHTED MATERIALS IN YOUR CURRICULUM UNIT

If you wish to include in your curriculum units passages from sources exceeding a very few lines that are under copyright protection (and most sources are copyrighted materials), you should first obtain permission from the copyright owner. However, in citing a few lines from a given source, you do have the liberty of scholars to do so, within limits, known as "fair use."

Fair Use

You need not obtain permission if you are only using brief portions of a text, a process known as "fair use"—though you must always give credit to a source, no matter how brief the passage. *The Chicago Manual of Style* describes the custom of fair use in the following way: "Although copyright law exists to protect the exclusive right of the copyright owner to copy the work, the law has long been interpreted as allowing others to copy brief portions of the work for certain purposes—as when a reviewer quotes from a

work being reviewed or when a scholar buttresses an argument by quoting from the work of another scholar” (13th Ed., Chicago: University of Chicago Press, 1982, p. 114).

How does one decide what use is “fair?” Again, *The Chicago Manual of Style*: “Essentially the doctrine [of “fair use”] implies that authors may quote from other authors’ work to illustrate or buttress their own points. They should transcribe accurately and give credit to sources. They should not quote out of context, making the author of the quoted passage seem to be saying something...different from...what was intended. And quotations should not be so long that they diminish the value of the work from which they were taken. In the latter instance proportion is more important than the absolute length of a quotation: to quote five hundred words from an essay of five thousand is bound to be more serious than to quote the same number of words from a work of fifty thousand” (13th Ed., Chicago: University of Chicago Press, 1982, pp. 123-24).

Seeking Permission to Use Copyrighted Materials

If you are using more than a brief passage from copyrighted material, you should seek permission from the copyright holder to use the material. The Institute cannot accept units that contain copyrighted materials that are more than brief passages that are considered “fair use.” Because of delays you may encounter in obtaining permission from copyright owners, Fellows should seek permission well in advance of completing their units. We suggest that Fellows write for permission while preparing their first drafts.

Copyright Permissions

Once you decide to include an excerpt from a book, an article from periodical or newspaper, a poem, an excerpt from a unit of music (song, movement, etc.), a short story, photograph, or illustration etc., you should perform the following steps:

Step 1 No matter how long the material excerpt (that is, how much is used) from the total work, you should be aware that the total work may have outlived its copyright protection and may be in the public domain. Once in the public domain, there are no restrictions on the use of the work, though, of course, when quoting, you must still precisely cite your sources.

At this time, works which were under a statutory copyright before 1922 are definitely in the public domain. This in effect means that any work published before 1922 is in the public domain. Therefore, you should realize that there is a great deal of valuable material already in the public domain and available for your use. However, original contributions may be made to works in the public domain. These contributions may be copyrighted and, thus, may not be in the public domain.

As an example, all of Shakespeare’s plays are in the public domain. However, if a new edition of one of the plays is annotated, then the annotations in this new edition would be copyrightable because of the original contributions of the editor. Thus, you should be aware of these possibilities. The original language of Shakespeare remains in the public domain, of course, and you are not required to seek permission from any publisher to use it.

In order to acquire information as to the public domain status of certain works, you should send a version of the following letter to the Register of Copyrights:

Register of Copyrights
Library of Congress
Washington, D.C. 20559

Dear Register:

Please provide information on the copyright status of the following item(s).

Name of work:
Author(s) or composer(s):
Original Date of Publication:
Original Holder of Copyright:

STATUS

Public Domain: _____

Copyright Held By: (Name of Owner): _____

(Address): _____

A duplicate copy of this form and a self-addressed envelope are enclosed to expedite reply. Thank you.

Sincerely,

(*Signature*)

Step 2 If the work (or excerpt) is not in the public domain (or it is not clear whether it is) you should secure permission from the copyright owner to duplicate the material. This is not difficult to do.

The following information is designed to help you locate holders of copyright and secure permission. If you have any question or need help, ask the Institute staff (our phone number is 713.743.3986), a writing mentor, your Coordinator, or Seminar Leader.

Locating the Copyright Holder

The title page or the reverse of it is the appropriate place for the copyright notice, which consists of the year of publication, the name of the copyright owner, and in general, any acknowledgements of other copyrighted materials used in the books. The word “acknowledgement” indicates that some materials were originally published elsewhere, and that the copyright for these materials remains with the original owner.

The address of most copyright holders is printed with a copyright notice, but be aware that publishers may move or the copyright rights may be sold or transferred to another company. The publishers’ associations listed below can help in supplying information.

Association of American Publishers
1920 L. Street, N.W. Suite 750
Washington, D.C. 20036

Music Publishers of the United States
Third Floor
130 West 57th Street
New York, New York 10019

Magazine Publishers Association
575 Lexington Avenue
New York, New York 10022

National Music Publishers Association
110 East 59th Street
New York, New York 10022

Also the US Register of Copyrights keeps records of all deposits and transfers (the sample letter above provides a form for asking for this information). The Copyright Office will, for a fee, conduct a search on request if there is real difficulty in locating the current owner of a copyright.

Securing Permission

You should send a request, together with a self-addressed return envelope, to the copyright owner. (If the owner is a publisher, send to the permissions department.) Also, send a photocopy of the copyright page and the page or pages on which permission is requested. You can also first try to find this publisher's Web site or e-mail address and contact the publisher electronically. In either case, you need the information listed below:

1. Title, author and/or editor, and edition
2. Exact material to be used to be used in your unit
3. Number of copies to be made (HTI will print about 250 copies of each volume).
4. Form of distribution (the printed volumes of Curriculum Units published by the Houston Teachers Institute and posting on our Web site).
5. Your testimony that the material is not to be sold.
6. If they ask, reprints will be photocopies.
7. That because of limited non-profit distribution for teaching purposes, it is requested that no royalty or fee be charged.

Do not hesitate to request that a reply be furnished promptly. If permission is obtained and you do use the item in the unit, the following notice should appear in an endnote at the end of the unit. For example: (1) Reprinted by permission from (Title of Book, Author), © (date) by (copyright owner).

Sample Request Letter

Dear Sirs:

I am a teacher in the Houston Independent School District, and through the Houston Teachers Institute I am preparing a curriculum unit for my own and for my colleague's use in school courses. The Houston Teachers Institute is a partnership between the University of Houston and the school district to help strengthen teachers and teaching in the public school in our city. I want to include in my unit, which I plan to teach my students next year, the following materials to which you hold copyright.

1. Title, author and/or editor, and edition:
2. Material to be used (photocopy attached):

My unit, containing this material, will be compiled with other curriculum units which the Institute will reproduce and distribute free of charge to teachers in Houston schools and to other teachers upon request. The units are intended to suggest appropriate materials which teachers may decide to use in their own classrooms. Teachers in the Institute assemble these materials under grants from various private and public funders. Because of the limited non-profit distribution for teaching purposes, we request that no royalties be charged.

I request your written permission to reproduce this material in the reproduced compiled units. Because HTI units must be available to teachers at the beginning of the school year, I appreciate your prompt consideration and reply.

Sincerely,

Institute Fellow

Address:

“Fair Use” requirements may make it unnecessary to write publishers. However, getting this permission is important if you want to quote a work extensively, so please follow these guidelines. And do call the HTI office for help if you need it!

11. CONTENT, LENGTH AND FORMATTING SPECIFICATIONS

A. Format

The completed Coversheet and Indexing Form should be copied from the Handbook and attached to the copy of your unit to be submitted to the HTI office and your Seminar Leader. No other coversheet should be used.

Margins: 1 ½” top; 1 ¼” left and right sides; 1” bottom.

Font: 12 point, Times New Roman

Title: Give the unit a concise, clear and descriptive title.
Bold, not in all-caps (Do not include a title page.)

Name: Your name should appear centered and in italics, two lines below the title School—Centered on next line under Fellow's name, not italicized

Two lines below your school name begin your unit
DO not include any graphics or other information (such as the date, Seminar Leader etc.)

Headings: Level 1: **BOLD CAPS**, flush left
Level 2: **Bold Title Case**, flush left
Level 3: ***Bold Italics Title Case***, flush left
Level 4: Underlined (not bold), flush left

Indents: ¼” to begin each paragraph.
Bibliographic Entry Indents: the first line of each entry is not indented, lines below the first line are indented ¼”.

Unit Content: Single-spaced paragraphs
Double space between paragraphs
No right margin justification

Quotations: Block indented ½” if longer than five lines, and properly referenced.

No Page numbers: Do **not** use page numbers in either the printed or electronic version of your unit. Say “above” or “below” if referring to other parts of your unit – do not cite page numbers of your own unit.

Illustrations: Do not use copyrighted illustrations or photographs.

- Illustrations do not contribute to the overall page-length of your unit.
- Must be pertinent to your unit and properly cited.
- Label, e.g. “Figure 1” and refer to illustrations accordingly. (Do not refer to them by page number.)
- Images must be clear and crisp. Bear in mind that we do not publish units in color.

Overall Length: 15-20 pages, single-spaced 12 point font Times New Roman, Four lesson plans, and annotated bibliography.

Typos and Proofreading: Carefully check your unit for grammar and spelling. Be certain that all of the Internet addresses are accurate.

B. Content

The body of the unit consists of the **Introduction**, the **Objectives**, the **Rationale**, and **Unit Background**. See the sections of the Handbook that deal with the requirements for the writing of the unit. Outlines, lists, and worksheets, when included, belong in the second section of the unit, the one devoted to **lesson plans**.

At least **four** original lesson plans, which are examples of those the teacher will use in the classroom, are required. These should include four or more detailed examples of classroom activities. These should be presented in sentence form rather than in the form of simple bulleted lists, and they may include descriptions of your intended supplementary material. **These lesson plans should conform to district requirements and terminology and should have the TAKS objectives (or HISD approved objectives) clearly stated.**

An **annotated bibliography:** include **Works Cited** and **Supplemental Sources**.

Copyrighted material: Be sure to follow the Institute guidelines given in this Handbook under *Use of Copyrighted Materials in Your Curriculum Unit* in this Handbook.

C. Synopsis

A one-paragraph single-spaced summary of your unit (approximately 200 words). This should include a description of the topic of your unit, the type of activities and methods you will use to teach this topic, and anything pertinent or unique you feel your unit brings to the subject matter. The synopsis should be saved on your disk as a file separate and distinct from your unit (save it as <Your Last Name> Synopsis – for example, “Smith Synopsis”). **When submitting the hard copy of your unit, the synopsis should be on a separate page.**

12. SAMPLE OF A PROPERLY FORMATTED PAGE

The page following this one has been included in the Handbook to give you an idea of how a properly formatted page looks. We have numbered formatting details on the page to the right. The key to the numbers is below.

- 1.) **Top margin:** 1 ½”
- 2.) **Left margin:** 1 ¼”
- 3.) **Right margin:** 1 ¼”
- 4.) **Bottom margin:** 1”
- 5.) **Level One Heading** (main section heading): in BOLD CAPS, left justified, 12 pt Times New Roman font.
- 6.) **Level Two Heading** (sub-heading): in bold title 12 pt Times New Roman font.
- 7.) **Block quote:** Indented ½”, left justified (use block quotes when quoting more than 5 lines – no quotation marks).
- 8.) **Citation:** Parenthetical format—include author and page number. (Citation included within the last punctuation mark of the sentence – use quotation marks.)
- 9.) **Citation when using a block quote.** (Citation appears after the last punctuation mark of the quote.)
- 10.) **Paragraph Indent:** ¼” for all paragraphs
- 11.) **Citation when including author’s name in sentence.** (Include page number only at the end of the sentence within the punctuation marks.)
- 12.) **Left Justification:** all paragraphs (including block quotes) are left justified.
- 13.) **A double space between paragraphs.**

Please don’t hesitate to ask your Coordinator, a writing mentor or call the Institute at 713.743.3986 if you have any questions about formatting requirements.

↑ (1)

(5) THE IMPORTANCE OF FORMATTING

(6) Clarity

(10) One of the main reasons for formatting conventions is the assistance it gives the reader in understanding the major objectives of the author and in following the organization and logic of the essay. About this assistance, Greene remarks, “A properly formatted page makes it easier to understand the aims of the author” (*Green Rules* 233). Black observes that: ↑ (8)

(7) ↔ It is especially important that a volume of collected essays by various authors have a uniform appearance. Imagine what the book would look like if each contributor used a different type size or font. There would be no visual unity or cohesion. A consistent use of formatting conventions serves a similar purpose in helping the reader move easily from essay to essay. (193) ← (9)

(2) ↔ Clarity requires that the same format be used in a collection of writing. There is a logic to these rules. On this page the title of the major section uses Bold Capitals, a choice that calls the reader’s attention to the new section. The two sections on Clarity and the History of Formatting are stated in Bold. If you wanted to use a subdivision in these second sections, bold Italics would be used. Maintaining the same convention in all the units in the volume helps the reader move easily between sections. Indenting and spacing also help clarity. The shorter quotation from Jones is not indented; the longer one is indented. The convention of indentation in quotations of four lines or longer signals to the reader that these are not the author’s own words, but the author thinks these thoughts are important enough to include. Because longer quotations are rarely used, the indentation emphasizes the importance of the selection (White 55). ↔ (3)

Uniformity in methods of citation also contributes to clarity. Black’s and White’s books are not named. The reader can find this information in the Bibliography. In the longer indented quotation, Black’s name was not included because the name had been given in the introduction to the quotation. The reference to Greene in the first paragraph includes a partial title of a book. This is because Greene has several books or articles included in the Bibliography.

(6) Brief History of Formatting

Formatting has a long history. Particular conventions might differ between cultures, but within a culture there was uniformity. The Babylonians used a type of formatting when they used clay tablets. The size of the tablets was relatively uniform from place to place and from scribe to scribe (Brown 44). Most of the tablets dealt with mathematical problems and using a consistent method and order in recording data assisted those who referred to the information. The reader or user would know where to start reading the text by observing these conventions. ↑ (11)

↑ (4)

13. SUBMITTING THE ELECTRONIC VERSION OF CURRICULUM UNITS AND SYNOPSES

Please contact the Institute if you have any questions regarding these instructions. Our number is 713.743.3986.

Unit Specifications

1. The unit must be at least **15 single-spaced pages and a maximum of 20 single-spaced pages** including Works Cited. A thirty or forty page unit is **not** more impressive than a fifteen to twenty page unit.
2. There must be **four coherent, developed, and original lesson plans**.

There must be an annotated bibliography, including Works Cited and Supplemental Sources that follow the Modern Language Association (MLA) style, examples of which are included in this handbook.

Disk Specifications

1. The diskette should be a regular 3½-inch floppy or CD-ROM in PC format. Please label your disk with the following information:
 - Your name
 - Your seminar leader's name
 - The name of the word processing program you used to prepare your unit (e.g. Microsoft Word). Please include the edition or year of the program.
2. Save your unit and synopsis as two separate files. When you save your unit, name the documents using your last name, such as "Smith.Unit" and "Smith.Syn."
3. If you are using a program other than MS Word, save your unit and synopsis as Rich Text Format (RTF) documents. (You can do this with most word processing programs such as MS Works, AppleWorks or WordPerfect.) This will make it possible for us to access your unit on your disk.
4. On the official coversheet that you are required to submit to HTI with the hard copy and electronic version of your unit, please indicate the word-processing program you used to write your unit and synopsis, and the format of your disk.

Note: If our computers are unable to read the submitted version of your Curriculum Unit then you will be required to submit the electronic version of your CU by e-mail. Simply attach the unit (saved in MS Word or as a Rich Text document) to an e-mail and send it to hti@uh.edu. Please do not send the unit as the text of your e-mail, as it loses all of its formatting and is impossible to edit and publish.

Document Specifications

1. The unit on the disk should follow the Content, Length and Formatting Specifications in this Handbook, so that all the units are formatted uniformly for publication.
2. Please be aware that all pictures, graphs, etc. are published and posted to the HTI website in black and white. Any pertinent pictures that are incorporated into the final document must be saved in grayscale (not in color) and in JPEG format.

This minimizes the memory required for the image, but retains enough definition to allow the picture to remain viewable.

Your disk should contain **only two** files: 1) The unit (named *Yourlastname.unit*), and 2) the synopsis (named *Yourlastname.syn*). These should be **separate** files. **Save your Curriculum Unit as one file** (this includes: the introduction, the rationale, the objectives, the unit background, the lesson plans, the bibliography, and any appendices) on the disk. Saving sections of the CU as separate files makes it impossible to publish your unit. So, please do not break up your CU into separate files.

Fellows Questionnaire

A questionnaire will be distributed to all Fellows by early May. You must return the completed questionnaire on or before the final unit deadline day in early June, either by mailing in the stamped, self-addressed envelope provided by the Institute, or by delivering it personally to HTI's offices. **Please do not turn in the questionnaire to your Seminar Leader. If you return the questionnaire by mail, it must be postmarked on or before the final deadline day.** You will not be eligible for your Fellowship stipend, nor will your unit be published if you do not return your questionnaire.

What to Turn In

To the Seminar Leader:

- Hard copy of the unit (unless the seminar Leader prefers to have your final unit as an electronic attachment to an e-mail)—**single spaced**.
- Hard copy or electronic copy of the synopsis
- Indexing forms

To the HTI Office:

- Hard copy of the unit— **single-spaced**.
- Hard copy of the synopsis—single-spaced.
- Electronic copy of unit and synopsis submitted as two separate files
- Coversheet and Indexing forms
- Updated address and SSN information
- Questionnaire

Format or burn a NEW disc with your final, corrected synopsis and unit. Do not turn in a disc that holds older versions of your unit. There should be two (2) and only two separate documents on the disc, your synopsis with that file name stated as *Yourlastname.Syn* and your unit as a file named *Yourlastname.Unit*. If you have any problem formatting or burning your disc, call the office at 713-743-3986 and get permission to e-mail your synopsis and unit as e-mail attachments. Please name those attachments as described above.

You may mail these items, postmarked no later than the final version deadline to:

Houston Teachers Institute
c/o The Honors College at the University of Houston
212 MD Anderson Library
Houston, TX 77204-2001

You may also drop final version materials off at the HTI office on or before the deadline day, but please phone before coming to make sure someone is in the office to receive your unit. Our phone number is 713.743.3986.

Directions to the HTI Offices: After exiting I-45, come down Cullen and turn left at Elgin. Turn right at the first campus entrance, Entrance 18. Turn left at the first driveway. Up ahead you will see some trailers. Park and enter the trailer village. We are in Building 13, office D. There are directions and maps on the website for the University of Houston. Just search under the title “hti.”

14. COVERSHEET, INDEXING FORM, AND ADVICE FOR INDEXING

Coversheet

A copy of this form, along with the form reflecting your indexing information, should be attached to the unit as a cover sheet and submitted with the final product. Please type or print clearly and sign below.

Author: _____

School: _____

Curriculum Unit Title: _____

The Institute requires that each unit is a minimum of 15 single-spaced typed pages in length not including illustrations and not more than 20 pages single-spaced. Those 15-20 pages contain the introduction, the clearly stated objectives, the rationale, the unit background, at least four fully developed lesson plans, and an annotated bibliography. A one paragraph synopsis is also required.

Please indicate the page length of your unit below:

Total Page Length: _____

Page Length of Essay: _____

Page Length of Lesson Plans: _____

Please indicate the platform (Mac or PC) and word processing program (Word, etc.) in which your unit and synopsis are saved:

PC

Macintosh

Microsoft Word (preferred) Edition or year _____

Other (please specify, including edition or year) _____

My unit complies with HTI's standards of academic honesty and, where applicable, I have obtained permission to use copyrighted materials. I give permission for the Institute to publish my curriculum unit in print and online. I understand that I will be credited as the author of my work.

Signature

Date

Indexing Information Related To Your Unit

The Institute has an exhaustive index including all units published from the beginning of the program. In order to assist us in giving your unit coverage under all appropriate headings under which it might be consulted by a teacher looking for assistance in teaching subjects similar to the one in your unit, please list below no more than four main topics by which to index your curriculum unit. Include sub-topics under main topics, where appropriate. See the following pages for more indexing instructions and guidance. Attach this completed form to the final version of your unit and mail it to HTI with your other materials by the June deadline.

Main Topic (*title of the unit*)

1. Key Words for Introduction _____

2. Key Words for Objectives and Rationale _____

3. Key Words for Unit Background _____

The following examples illustrate the presentation of main topics and key words for indexing a curriculum unit in a seminar on modern forms of fiction. The unit was on Detective Fiction. You'll observe that the unit fits under three main topics and that there are sub-topics or key words under each of these. One sub-topic (under "Detective Fiction") is itself divided into two more sub-topics and each has key words. We recommend that you look at the HTI Index, found at <http://hti.math.uh.edu> on the Internet for main topic and sub-topic categories. Two pages of our index are included here in the following pages of this section.

Main Topic

Detective Fiction as Literature

Key Words for Introduction:

Literature
Detective Fiction
Problem Solving

Key Words for Objectives and Rationale

Reading Instruction
Critical Thinking

Key Words for Unit background

Observation
Analysis
Problem solving
Writers' styles

Additional examples of key words and topics for indexing a curriculum unit:

Dance

Cuban
Indian
Mexican
South Asian
West African

Drama (see also Literature, Drama)

American
Hansberry, Lorraine
Race Relations and Perceptions
Ancient Greece
Antigone
Comedy

Performance

Readers Theatre
of Shakespeare
of Spanish Language Works

Shakespeare

for ESL Students

Information Needed For Proper Payment of HTI Fellows Honorarium in the Fall
(fill out this portion for **only** HTI office – all information is kept secure)

Please type or neatly print the following information:

Full Name: _____

Social Security Number: _____

Current Mailing Address: _____

E-mail Address: _____

15. Final Checklist:

For Seminar Leader:

- Hard copy of Curriculum Unit
- Hard copy of Synopsis
- Indexing form

For HTI Office:

- Hard copy of Curriculum Unit
- Hard Copy of Synopsis
- Disc copy of Curriculum Unit and Synopsis
- Cover Page for Unit
- Indexing form
- Evaluation Questionnaire
- Updated Address and SSN form

UH Libraries:

- Return all books

**Examples of
Prospectus
and
First Draft**

16. NOTE ON EXAMPLE OF A PROSPECTUS

A prospectus, a first draft, and one completed unit are included in the Fellows' Handbook to serve as illustrations. **These examples are not meant to limit you in terms of the *substance* of your projects. They are to give you an idea of the *form* for your prospectus and drafts.**

Comments concerning the example of the prospectus are included below. The comment page *precedes* the example. Each of these examples fully meets the requirements for the form of curriculum units described in article #8 of this handbook.

The prospectus, first draft, and completed unit examples were written by Erin M. Counihan, teacher of English at Lee High School for the 2008 seminar *From One Cell to Many: The Dynamics of Life*. Hundreds of finished units may be found online at the HTI website <http://hti.math.uh.edu> under "Curriculum Units."

Comments on the Prospectus

The author of this prospectus has chosen a title that aptly describes the unit-to-be, "*Brave New World: Fictional Dystopia or Grave Prediction?*". She has thought about what will interest her students and has chosen an engaging topic—a key requirement for an effective unit. The seminar for which this prospectus was written was entitled, *From One Cell to Many: The Dynamics of Life*, and her prospectus is very closely related to the theme of the seminar—another requirement for a successful unit. Titles should be as descriptive and precise—and interesting—as possible.

This prospectus, in approximately three double-spaced pages, thoroughly meets the Institute's requirements by addressing what the unit will be about and why the unit is important for students. There is a formal bibliography and some of the references are *annotated*—that is, accompanied by brief notes indicating the value of the reference to the author and to her future readers. The formal bibliography may be started in the prospectus or in the first draft. You annotate the bibliography with information about how useful the source will be to your project. Annotation indicates where you may do research later as you work on your first and later, second draft. It is often in the first draft that Fellows include Works Cited and the Supplemental Sources sections.

Erin has also cited sources she has used in the prospectus and has used correct parenthetical citations. It is very helpful to start proper citation at the beginning of the process of writing the curriculum unit.

When she writes her prospectus, the author indicates which way the unit may develop, and mentions some people about whom she will do further research. The unit's breadth may narrow or expand later. She has explained why this subject is one that other English teachers might use.

The seminar and this unit deal with biology and current research in cell biology, so the writer adheres to the seminar topic and adapts it to her academic goals. The description of her unit topic shows that she has investigated a number of sub-themes. The direction of development for the unit is already clearly indicated here—Erin will investigate research that will support or disprove Huxley's descriptions of the creation of life. Further development will be guided by her perception of what will be most effective with her students in her English classes and by the time she will allow for the unit—questions that should not be far from any curriculum unit writer's thoughts.

16. EXAMPLE OF A PROSPECTUS

Brave New World: Fictional Dystopia or Grave Prediction?

Erin M. Counihan
Lee High School

PROSPECTUS

Introduction

The seminar “One Cell to Many” may seem a strange choice for an English teacher, but I am hoping to use the experience to broaden my own knowledge of science to relate to science fiction. I always discuss the historical context of any work before teaching it, but in some cases I don’t have the scientific knowledge to explore the aspects of science fiction within a work. When reading Aldous Huxley’s novel *Brave New World* in my Advanced Placement English Literature course, for example, my students begin to ask questions that I cannot answer – and the questions begin on page 4.

We begin learning about the Central London Hatchery and Conditioning Centre from the beginning of the novel. Students are always intrigued by the “Fertilizing Room,” where eggs are removed from surgically removed ovaries, “immersed in a warm bouillon containing free-swimming spermatozoa”, fertilized, and sent to incubators (Huxley 4). Depending on the caste that has been predestined, the ova are either “bottled” (in the case of the upper caste Alphas and Betas) or brought out for further work (in the case of the lower caste Gammas, Deltas, and Epsilons). This seems, to my students and me, a believable process – until we get to the details of “Bokanovsky’s Process,” through which the lower caste ova will have their development arrested (Huxley 4). A “bokanovskified egg will bud, will proliferate, will divide....every bud will grow into a perfectly formed embryo, and every embryo into a full-sized adult. Making

ninety-six human beings grow where only one grew before” (Huxley 4). It is at this point where my students begin to ask if this is possible now or will be soon, and where my students who are taking Advanced Placement Biology begin to discuss cloning, ectogenesis, stem cell transplants and other topics about which I know very little; it is at this point when I tell myself I should take a course in cell biology.

In this unit designed for my senior Advanced Placement English Literature course, I will explore the science behind Aldous Huxley’s *Brave New World* – the author’s early influences and passions – as well as attempt to address the science that Huxley only hinted at in his novel. Stem cell research and cloning are very visible now, and students love to debate the science, ethics, and religion connected to these issues. Because there is such a high interest level, I am hoping to address these issues, broaden the appeal of *Brave New World*, and encourage my students to become strong, well-rounded thinkers. Other topics in science and sociology come into focus while reading this novel, including the idea of medicating sadness away (soma), making death an impersonal and almost positive occurrence, or the ramifications of “free love,” (including in children), but they will not be at the center of this unit.

Author Background – Some of Aldous Huxley’s early influences

Aldous Huxley was born in to a very intellectual and scientific family. His paternal grandfather, Thomas Henry Huxley, was a supporter and contemporary of Charles Darwin and wrote his own book, *Evidence on Man's Place in Nature*. Aldous’s father , Leonard, was a biographer who married Julia Arnold, sister of novelist Mrs. Humphrey Ward, niece of the poet Matthew Arnold, and granddaughter of a famous educator, Thomas Arnold (“Aldous Huxley: The Author and his Times”). Leonard and Julia’s oldest son, Julian, became a prominent scientist in the 20th century. (Section to be developed.)

Some of the Science – (“Simplified” ?)

When looking to predict the possible reality of Huxley’s Bokanovskification, my search led me to the idea of cloning. Reproductive cloning is used to “generate an animal that has the same nuclear DNA as another currently or previously existing animal,” but it is expensive and highly ineffective (Human Genome Project). It creates nearly identical clones of the animals that donated adult cells: “Only the clone’s chromosomal or nuclear DNA is the same as the donor. (Human Genome Project). This, on the surface, appears similar to the Bokanovsky process, but the mitochondrial DNA and their mutations mentioned above would appear to disallow the Bokanovsky process from actually occurring today. However, “if the low success rates can be improved, reproductive cloning can be used to develop efficient ways to reliably reproduce animals with special qualities. For example, drug-producing animals or animals that have been genetically modified could be mass produced” (Human Genome Project), which does suggest that our world could replicate Huxley’s factory-created Deltas and Epsilons.

Another kind of cloning, therapeutic cloning, produces human embryos for use in research, not to create cloned human beings, but “to harvest stem cells that can be used to study human development and to treat disease” (Human Genome Project). Unlike Huxley’s Bokanovskified embryos, the embryos used in therapeutic cloning are destroyed when stem cells are extracted from the egg after it has divided (the blastocyst?) (Human Genome Project). “Therapeutic cloning technology may some day be used in humans to produce whole organs from single cells or to produce healthy cells that can replace damaged cells in degenerative diseases such as Alzheimer’s or Parkinson’s” (Human Genome Project), which suggests that Bokanovskification may be out of reach, but that science may create Huxley’s “social stability” artificially – where the upper echelons of society will be able to afford to rid their offspring of diseases (creating

healthy and more worry-free Alphas and Betas) but the less fortunate will be relegated to lives of poverty and loss (though not likely as content as Huxley's conditioned Gammas, Deltas, and Epsilons).

[I will also be researching the work of Hans Scholer, whose research team found that “not only can stem cells from mouse embryos produce eggs but also those eggs can then divide, recruit adjacent cells to form structures similar to the sacs - follicles - that surround and nurture natural mouse eggs and develop into embryos” (Highfield).]

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Analysis of the entire work, primarily to be used for author biography and influences.

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An article discussing the science of *Brave New World* and its relevance to today. Was Huxley right? Also supports Aldous Huxley as a scientist with legitimate background to write "real" science

"Sir Julian Huxley." Encarta. 2007. Microsoft. 9 Feb. 2008
<http://encarta.msn.com/encyclopedia_761576201/Julian_Huxley.html>.
Biography of Aldous's older brother, a prominent evolutionary scientist.

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Biography of Aldous Huxley's grandfather, the supporter of Charles Darwin.

18. EXAMPLE OF A FIRST DRAFT

In this First Draft, Erin has several sections that are well polished and almost finished. She has indicated points for which she needs a reference, areas that she plans to develop, and items in the bibliography that have to be checked. (In her original first draft, she used red to indicate these sections, but for the handbook we change the red to italics. The red made it easier for the seminar leader to see the questions Erin had.) She has taken an approach that many Fellows prefer. She has thought extensively about her topic and the breadth and depth of her unit have increased since the prospectus. Although there are some sections that are not completely developed, at this point there is a thorough and detailed outline of what will be covered. Her organization is complete. The great advantage here is that as she writes the second draft, she knows exactly where she wants to go and what needs to be done. This First Draft is a complete road map for the Curriculum Unit.

Her bibliography has been developed and she has included suggestions for her lesson plans. It is not necessary to have lesson plans included in the First Draft. However, it helps to have some ideas of activities that are appropriate for various sections of the unit.

FIRST DRAFT

***Brave New World* by Aldous Huxley: Fictional Dystopia or Grave Prediction? / Science or Science Fiction?**

Erin M. Counihan
Lee High School

INTRODUCTION

OBJECTIVES

RATIONALE

The seminar “One Cell to Many: The Dynamics of Life ” may seem a strange choice for an English teacher, but I am hoping to use the experience to broaden my own knowledge of science to relate to science fiction and to develop a strong, cross-disciplinary unit to pique my students’ interests. I always discuss the historical context of any work before teaching it, but in some cases I don’t have the scientific knowledge to explore the aspects of science fiction within a work. When reading Aldous Huxley’s novel *Brave New World* in my Advanced Placement English Literature course, for example, my students begin to ask questions that I cannot answer – and the questions begin on page 4.

We begin learning about the Central London Hatchery and Conditioning Centre from the beginning of the novel. Students are always intrigued by the “Fertilizing Room,” where eggs are removed from surgically removed ovaries are “immersed in a warm bouillon containing free-swimming spermatozoa,” fertilized, and sent to incubators (Huxley 4). Depending on the caste that has been predestined, the ova are either “bottled” (in the case of the upper caste Alphas and Betas) or brought out for further work (in the case of the lower caste Gammas, Deltas, and Epsilons). This seems, to my students and me, a believable process – until we get to the details of “Bokanovsky’s Process,” through which the lower caste ova will have their development

arrested (Huxley 4). A “bokanovskified egg will bud, will proliferate, will divide....every bud will grow into a perfectly formed embryo, and every embryo into a full-sized adult, making ninety-six human beings grow where only one grew before” (Huxley 4). It is at this point where my students begin to ask if this is possible now or will be soon, and where my students who are taking Advanced Placement Biology begin to discuss cloning, ectogenesis, stem cell transplants and other topics about which I know very little; it is at this point when I tell myself I should take a course in cell biology.

In this unit designed for my senior Advanced Placement English Literature course, I will explore the science behind Aldous Huxley’s *Brave New World* – the author’s early influences and passions – as well as attempt to address the science that Huxley only hinted at in his novel. Stem cell research and cloning are very visible now, and students love to debate the science, ethics, and religion connected to these issues. Because there is such a high interest level, I am hoping to address these issues, broaden the appeal of *Brave New World*, and encourage my students to become strong, well-rounded thinkers.

UNIT BACKGROUND

Author Background – Some of Aldous Huxley’s early influences

See Lesson Plan One: Introductory Research / Persuasive Essay (students will research the background / biography of Aldous Huxley, using print and electronic sources, to determine if Huxley was qualified to pen a “legitimate” book of science. They will also use tools of persuasion: ethos/logos, concession, etc. to prove their point.) Also revise this paragraph to serve as an introduction to their assignment and a transition to the biographical information below.

Aldous Huxley was born in to a very intellectual and scientific family. His paternal grandfather, Thomas Henry Huxley, was a supporter and contemporary of Charles Darwin and wrote his own book, *Evidence on Man's Place in Nature*, that presented evidence for human evolution, a topic Darwin had avoided (Thomas Henry Huxley). Thomas surrounded himself with other famous men of science and philosophy, studied broadly, and founded a formidable dynasty of intellectually and scientifically minded descendants.

Aldous's father, Leonard Huxley, was a biographer (of his father and of Charles Darwin). Leonard married Julia Arnold, sister of novelist Mrs. Humphrey Ward, niece of the poet Matthew Arnold, and granddaughter of a famous educator, Thomas Arnold ("Aldous Huxley: The Author and his Times").

Leonard and Julia's oldest son, Julian, became a prominent scientist in the 20th century, following in Thomas Huxley's footsteps. Just before Aldous began working on his *Brave New World*, Julian wrote *Religion Without Revelation*, in which he suggested that humans "could find an outlet for their religious zeal in contemplation of their own destiny, rather than in theistic creeds" ("Sir Julian Huxley").

After the death of his wife Julia, Leonard Huxley remarried; his first son by this new marriage was Andrew F. Huxley, the 1963 Nobel Laureate in Physiology or Medicine. In 1932, the year that Aldous's *Brave New World* was published, Andrew went to Cambridge planning to major in the physical sciences ("Andrew F. Huxley"). An "extra" course in physiology started him on the professional path that was to lead to the collaborations that would, in turn, lead to his Nobel Prize ("Andrew F. Huxley").

Aldous Huxley himself obviously grew up in a family of the intellectual elite in England, and this must have affected his own life and his writing. A friend once said that Aldous's ancestry

"brought down on him a weight of intellectual authority and a momentum of moral obligations" ("Aldous Huxley: The Author and his Times"). Aldous was different from many of his peers; however, he "felt that heredity made each individual unique, and the uniqueness of the individual was essential to freedom....Like his family, and like the Alphas of *Brave New World*, Huxley felt a moral obligation--but it was the obligation to fight the idea that happiness could be achieved through class-instituted slavery of even the most benevolent kind" ("Aldous Huxley: The Author and his Times"). Huxley studied science as a child, though he was prevented from becoming a surgeon by an eye illness that left him nearly blind. As he turned to writing, his scientific interests and history come to light, especially in 1932's *Brave New World*.

As an adult, Aldous also has been rumored to have had some very impressive friends: geneticist J.B.S. Haldane and mathematician / philosopher Bertrand Russell. Haldane was a famous geneticist of the early 20th century who was an "innovative pioneer" in population genetics whose "brilliance" helped define the field, which "reshaped modern evolutionary biology" (Milner). He also published a work of fiction, *Dædalus*, which discussed the scientific possibility of "test tube" or "ectogenic" babies; this "shocking science fiction" was a commercial success and inspired Huxley's "decanted" babies in *Brave New World* (Milner). Russell's *The Scientific Outlook* may have been another source for *BNW* ... (cite & quote from novel)

His earlier writings "express the disillusionment of the 1920s," and his later works "the cynicism of the 1930s, and the questioning of the 1940s" (*Brave New World* – Monarch Notes). Two of Huxley's early novels, *Antic Hay* (1923) and *Point Counter Point* (1928) express the "despair and disillusionment of the period following World War I," and by the time he wrote *Brave New World*, "he despaired of man's ability to save himself from himself" (*Brave New World* – Monarch Notes).

Science in *Brave New World*

For a teacher wishing to develop an interdisciplinary unit with *Brave New World*, there are many topics in science that can be addressed. Huxley was obviously very well-versed in science, and so much of the scientific progress in his novel can be compared to scientific advances made since 1932. Teachers can choose to delve into any or all of these topics, dependent upon time and teacher/student interest.

Huxley creates a world in which ectogenesis and “test tube babies” are taken for granted – and have been for hundreds of years. Students may be intrigued about the details of in-vitro fertilization and could research not only the process but the ethical debates that have emerged from the procedure.

Even more controversial is the idea of cloning (similar to Huxley’s “Bokanovskification”). Though our world does not mass-produce children as does the World State in *Brave New World*, there are aspects of current research where parallels can be seen. Reproductive cloning strives to produce animals with specific qualities in order to aid in research and development for disease treatment, for example – not all that unlike Huxley’s “decanted” babies who are born into a specific caste for a specific purpose. Therapeutic cloning, also, can be discussed here, as one of the goals of researchers in this field is to produce human organs (again, for study of diseases and treatments). Both of these are very current topics, and both have ethical and moral debates around which students could rally, as well.

Further research into eugenics may be interesting as well; students will likely be quite interested to know more about the idea of creating a stronger human race by various means, including killing the weak and mentally handicapped. What was surprisingly popular in the years between the World Wars has evolved into the more modern idea of “designer babies,”

where it is predicted that parents will one day be able to have the genes of their unborn children “adjusted” in order to “create” a human being with certain desired qualities.

While Aldous Huxley created soma, the “perfect drug” with no negative ramifications, Western society is on a seemingly endless quest to create its own “perfect drugs.” Any student who watches television has likely been inundated with advertisements for various medications that claim to improve the quality of human life somehow, and many will be familiar (if only through movies) with the quests of many in the 1960s (including Aldous Huxley, as can be seen in his essays “The Doors of Perception” and “Heaven and Hell”) to find happiness of any kind, even pharmacological. Lessons on this topic could include a research on ADD and ADHD and the suggestion that parents and teachers over-medicate students that may or may not suffer from these disorders. Students could also study Grace Slick’s song “White Rabbit,” and its veiled criticism of parents in a society where “One pill makes you larger, and one pill makes you small,” but, as the lyrics caustically suggest, “the [pills] that mother gives you don’t do anything at all” (“Jefferson Airplane”).

Finally, for students and teachers who are interested in psychology, there is a great deal of social conditioning in *Brave New World*; in fact, its sleep teaching or “hypnopædia” is called “the greatest moralizing and socializing force of all time” (Huxley 28). All caste members in the *Brave New World* experience years of conditioning to “train” them as society wants them to be trained; students may argue that they, to some extent, are similarly conditioned by parents, teachers, politicians, or preachers.

Write better conclusions to above paragraphs – linking back to the idea of Huxley being “right” – also conclude section with explanation of “I am only going to focus on...because....”

Bokanovskification and Cloning

When looking to predict the possible reality of Huxley’s Bokanovskification, my search led me to the idea of cloning. Reproductive cloning is used to “generate an animal that has the same nuclear DNA as another currently or previously existing animal,” but it is expensive and highly ineffective (Human Genome Project). It creates nearly identical clones of the animals that donated adult cells: “Only the clone’s chromosomal or nuclear DNA is the same as the donor. Some of the clone’s genetic materials come from the mitochondria in the cytoplasm of the enucleated egg. Mitochondria, which are organelles that serve as power sources to the cell, contain their own short segments of DNA. Acquired mutations in mitochondrial DNA are believed to play an important role in the aging process” (Human Genome Project). This, on the surface, appears similar to the Bokanovsky process, but the mitochondrial DNA and their mutations mentioned above would appear to disallow the Bokanovsky process from actually occurring today. However, “if the low success rates can be improved (Dolly was only one success out of 276 tries), reproductive cloning can be used to develop efficient ways to reliably reproduce animals with special qualities. For example, drug-producing animals or animals that have been genetically altered to serve as models for studying human disease could be mass-produced” (Human Genome Project), which does suggest that our world could replicate Huxley’s factory-created Deltas and Epsilons eventually.

Another kind of cloning, therapeutic cloning, produces human embryos for use in research, not to create cloned human beings, but “to harvest stem cells that can be used to study human development and to treat disease” (Human Genome Project). Unlike Huxley’s Bokanovskified embryos, the embryos used in therapeutic cloning are destroyed when stem cells are extracted from the egg after it has divided (*the blastocyst?*) (Human Genome Project). “Therapeutic cloning technology may some day be used in humans to produce whole organs from single cells

or to produce healthy cells that can replace damaged cells in degenerative diseases such as Alzheimer's or Parkinson's" (Human Genome Project), which suggests that Bokanovskification may be out of reach, but that science may create Huxley's "social stability" artificially – where the upper echelons of society will be able to afford to rid their offspring of diseases (creating healthy and more worry-free Alphas and Betas), but the less fortunate will be relegated to lives of poverty and loss (though not likely as content as Huxley's conditioned Gammas, Deltas, and Epsilons).

[I will also be researching the work of Hans Scholer, whose research team found that "not only can stem cells from mouse embryos produce eggs but also those eggs can then divide, recruit adjacent cells to form structures similar to the sacs - follicles - that surround and nurture natural mouse eggs and develop into embryos" (Highfield).]

LESSON PLANS

Lesson Plan One: Introductory Biographical Research / Persuasive Paper: Is Huxley a Scientist?

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Supplemental Sources

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Bonner, John Tyler. *First Signals: The Evolution of Multicellular Development*. Princeton: Princeton UP, 2000.
Discussion of origins of multicellular development, and thus biological complexity. Lay terminology or well defined. Good background reading for teachers who may want to expand knowledge of *multicellular organisms*.

Nicol, Caitrin. "Brave New World at 75." *The New Atlantis: A Journal of Technology and Society* (Spring 2007). 9 Feb. 2008. <www.thenewatlantis.com/archive/16/nicolprint.htm>
Ethics and religion based journal: keep? An article discussing the science of *Brave New World* and its relevance to today. Was Huxley right? Also supports Aldous Huxley as a scientist with legitimate background to write "real" science

"Sorry, but your soul just died." *The Guardian* 13 Mar. 2002. 9 Feb. 2008.
<<http://education.guardian.co.uk>>
Edited excerpts from Francis Fukuyama's work, *Our Posthuman Future*, in which he argues that Huxley was right and that biotechnology will alter human nature in a potentially negative way.

**Example of
A Synopsis,
A Final
Curriculum Unit
and the
Accompanying Forms**

19. EXAMPLE OF A COMPLETED CURRICULUM UNIT

One complete curriculum unit is included in the Handbook to serve as an illustration of the form that should be followed in creating your unit. **This example is not to serve as a pattern for you in terms of the substance of your projects; it is simply to help give you an idea of what the final form of your curriculum unit might contain and how it should look.** Many more examples are available for viewing online or in hard copies. Please see article #8, section I, in this handbook for more information on locating these examples.

This section also includes examples of a coversheet, a completed indexing form, a synopsis, a personal information sheet, and a final check list.

Final Checklist:

For Seminar Leader:

- Hard copy of Curriculum Unit
- Hard copy of Synopsis
- Indexing form

For HTI Office:

- Hard copy of Curriculum Unit
- Hard Copy of Synopsis
- Disc copy of Curriculum Unit and Synopsis
- Cover Page for Unit
- Indexing form
- Evaluation Questionnaire
- Updated Address and SSN form

UH Libraries:

- Return all books

COVERSHEET, INDEXING FORM, AND ADVICE FOR INDEXING

Coversheet

A copy of this form, along with the form reflecting your indexing information, should be attached to the unit as a cover sheet and submitted with the final product. Please type or print clearly and sign below.

Author: Erin Counihan

School: Lee High School

Curriculum Unit: The Science of Aldous Huxley's Brave New World

The Institute requires that each unit is a minimum of 15 single-spaced typed pages in length not including illustrations and not more than 20 pages single-spaced. Those 15-20 pages contain the introduction, the clearly stated objectives, the rationale, the unit background, at least four fully developed lesson plans, and an annotated bibliography. A one paragraph synopsis is also required.

Please indicate the page length of your unit below:

Total Page Length: 20

Page Length of Essay: 8

Page Length of Lesson Plans: 5

Please indicate the platform (Mac or PC) and word processing program (Word, etc.) in which your unit and synopsis are saved:

PC

Macintosh

Microsoft Word (preferred) Edition or year: MS Word - 2003

Other (please specify, including edition or year) _____

My unit complies with HTI's standards of academic honesty and, where applicable, I have obtained permission to use copyrighted materials. I give permission for the Institute to publish my curriculum unit in print and online. I understand that I will be credited as the author of my work.

Signature

Date

Indexing Information Related To Your Unit

The Institute has an exhaustive index including all units published from the beginning of the program. In order to assist us in giving your unit coverage under all appropriate headings under which it might be consulted by a teacher looking for assistance in teaching subjects similar to the one in your unit, please list below no more than four main topics by which to index your curriculum unit. Include sub-topics under main topics, where appropriate. See the following pages for more indexing instructions and guidance. Attach this completed form to the final version of your unit and mail it to HTI with your other materials by the June deadline.

Advice and Examples for Indexing

Main Topic (*title of the unit*)

The Science of Aldous Huxley's Brave New World

Key Words for Objectives *Writing, Vocabulary, Reading Comprehension HS*

A.P. English 4, British Literature, Research, Analysis, Debate

1. Key Words for Rationale *Literature and Science, biology and English*

Cross-disciplinary, development of literary analytic skills

2. Key Words for Unit Background _____

ALDOUS HUXLEY— Family Background, Education, Scientific training;

BIOLOGY— Stem cell research, Cloning, In Vitro Fertilization

BRAVE NEW WORLD- SCIENTIFIC FACT OR FICTION, Dystopia, Science as it

Affects Humans

Information Needed For Proper Payment of HTI Fellows Honorarium in the Fall
(fill out this portion for only HTI office – all information is kept secure)

Please type or neatly print the following information:

Full Name: Erin M. Counihan

Social Security Number: 123-45-6789

Current Mailing Address: 4800 Calhoun Rd

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SYNOPSIS

The Science of Aldous Huxley's *Brave New World*

Erin M. Counihan
Lee High School

Aldous Huxley's dystopian novel *Brave New World* is one that is frequently taught at the high school level, but it is also often underestimated because it is so interesting and understandable. This curriculum unit strives to bring rigor and engagement to a study of *Brave New World* and to incorporate many topics of current and popular science as well. It is important for students to understand and to be able to make educated decisions about topics like stem cell research, cloning, or assisted reproduction, whether it is for political, environmental, or personal reasons; this unit will encourage them to do their own research and make their own informed choices, then to defend these choices in the face of disagreement.

At the beginning of the unit, students will determine whether or not Aldous Huxley should be considered a credible scientist, and this conclusion will drive their work throughout the novel. They will – through an amalgam of reading *Brave New World* and primary biology sources; hearing brief lectures about the basics of assisted reproduction, cloning, and stem cell potentials; and debating each others' conclusions – be able to more clearly assess their own viewpoints on these important matters. As they study the topics of this unit, students will not only learn enough science to be well-versed citizens but also be able to determine Huxley's warnings and assess whether or not our society is approaching its own dystopian *Brave New World*.

The Science of Aldous Huxley’s *Brave New World*

Erin M. Counihan
Lee High School

INTRODUCTION

Seniors in high school face many challenges after Spring Break: they begin to feel the pressure of leaving home to go to college, they begin to question their capabilities and their decisions, and they begin to experience the dreaded “senioritis.” Because of these factors, they find it difficult to focus on – or find interest in – what their teachers are presenting. In this curriculum unit, senior Advanced Placement English students will read Aldous Huxley’s *Brave New World*, a high-interest novel that encourages conversation and contains provocative subject matter. They will address the novel not as a piece of fiction, but as a vehicle through which to view our world and what it may still become. By studying Huxley himself and some of the current science that parallels the novel, students will become engaged and active and remain involved in learning even at the end of their high school career.

The school in which this unit will be taught is an inner-city high school in Houston, Texas. Many of the students in the school do not speak English as a first language and, therefore, have not had consistent training in English language and literature. This interdisciplinary curriculum unit is designed for an Advanced Placement English Literature and Composition class, but it can easily be modified for other high school English courses. The unit will be taught over a span of approximately four weeks. Courses meet three times a week, once for 40 minutes and twice for 95 minutes; therefore, each lesson plan is designed for a 40 or a 95 minute class period.

OBJECTIVES

The objectives for this interdisciplinary unit are based on the Texas Essential Knowledge and Skills (TEKS) for 12th grade Language Arts (see Appendix A for appropriate numeration) and on the College Board’s Advanced Placement expectations for English Literature and Biology.

Writing

Primary writing skills expect students to be able to write an organized, coherent piece that progresses logically, provides clear support, and uses vocabulary and rhetorical devices appropriate to the audience and purpose. Students will also be expected to use the Modern Language Association (MLA) manual as they format their research papers.

Reading

Though there are many objectives involved in studying a novel, only three primary reading objectives will be stressed continuously throughout the unit. Students will be expected to draw inferences and then support and clarify them. They will also be expected to connect the fiction and non-fiction they will be reading with historical contexts, current events (specifically in science), and their own lives.

Research

Students will be researching throughout this unit and will primarily be expected to evaluate the sources they use for appropriateness to the topic and to the audience. They will produce their own research projects for diverse audiences, and they will be able to draw relevant questions from their research, as well.

Advanced Placement

English Literature

This curriculum unit is designed to support the objectives of the College Board Advanced Placement Literature and Composition course. One of the purposes of this course and of this unit is to have a student “read deliberately and thoroughly, taking time to understand a work’s complexity, to absorb its richness of meaning, and to analyze how that meaning is embodied in literary form” (*English Literature Course Description* 45).

Biology

Secondary biology learning objectives will be interspersed throughout this unit. The student will understand and intelligently discuss the fact that “Scientific research often leads to technological advances that can have positive and/or negative impacts upon society as a whole” (*Biology Course Description* 6).

RATIONALE

The seminar “One Cell to Many: The Dynamics of Life” may seem a strange choice for an English teacher, but I am hoping to use the experience to broaden my own knowledge of science to relate to science fiction and to develop a strong, cross-disciplinary unit to pique my students’ interests. I always discuss the historical context of any work before teaching it, but in some cases I don’t have the scientific knowledge to explore the aspects of science fiction within a work. When reading Aldous Huxley’s novel *Brave New World* in my Advanced Placement English Literature course, for example, my students sometimes ask questions that I cannot answer – and the questions begin on page 4.

We begin learning about the Central London Hatchery and Conditioning Centre from the beginning of the novel. Students are always intrigued by the “Fertilizing Room,” where eggs taken from surgically removed ovaries are “immersed in a warm bouillon containing free-swimming spermatozoa,” fertilized, and sent to incubators (Huxley *Brave New World* 4). Depending on the caste that has been predestined, the ova are either “bottled” (in the case of the upper caste Alphas and Betas) or brought out for further adjustments (in the case of the lower caste Gammas, Deltas, and Epsilons). This seems, to my students and to me, a straightforward and believable process – until we get to the details of “Bokanovsky’s Process,” through which the lower caste ova will have their development arrested (Huxley *BNW* 4). A “bokanovskified egg will bud, will proliferate, will divide....every bud will grow into a perfectly formed embryo, and every embryo into a full-sized adult. Making ninety-six human beings grow where only one grew before” (Huxley *BNW* 4). It is at this point where my students begin to ask if this is possible now or will be soon, and where my students who are taking Advanced Placement Biology begin to discuss cloning, “in vitro” fertilization, stem cells, and other topics about which I know very little; it is at this point when I tell myself I should take a course in cell biology.

In this unit, I will explore the science behind Aldous Huxley’s *Brave New World* – the author’s early influences and passions – as well as address some of the science that permeates Huxley’s novel. Students will debate as to whether or not *Brave New World* was (or will become) a dire predictor for our society. Topics such as “in vitro” fertilization, “designer babies,” stem cell research, and cloning are very visible now, and students love to debate the science and ethics connected to these issues. Because there is such a high interest level, I am creating this unit to address these issues, broaden the appeal of *Brave New World*, design an environment where all students are actively writing, speaking, and defending well-researched arguments, and encourage my students to become strong, well-rounded thinkers.

UNIT BACKGROUND

Author Background – Some of Aldous Huxley’s Early Influences

Because the heart of this unit revolves around whether or not the science in the novel is legitimate, students must discern if Aldous Huxley had the scientific knowledge to make his book realistic. In Lesson Plan One below, students will research Huxley’s life in order to form an opinion about his qualifications and then present their results to their classmates. Most will likely determine that his experiences are worthy enough to tag the science in *Brave New World* as probable or even possible; his ancestry and his interests certainly lead to this conclusion.

Aldous Huxley was born to a very intellectual and scientific family. His paternal grandfather, Thomas Henry Huxley, was a supporter and contemporary of Charles Darwin and wrote his own book, *Evidence on Man's Place in Nature*, which presented evidence for human evolution, a topic Darwin had avoided. Thomas Huxley surrounded himself with other famous men of science and philosophy, studied broadly, and founded a formidable dynasty of intellectually and scientifically minded descendants (“Thomas Henry Huxley”).

Aldous’s father, Leonard Huxley, was not an established scientist, but he understood the concepts enough to be a recognized biographer of his father and of Charles Darwin. Leonard married Julia Arnold, who came from an intellectual family herself; she was the sister of a novelist, niece of the poet Matthew Arnold, and granddaughter of a famous educator, Thomas Arnold (“Aldous Huxley: The Author and his Times”). It would seem inevitable that such a learned couple would have children who pursued great ideas.

Leonard and Julia’s oldest son, Julian, became a prominent scientist in the 20th century, following in his grandfather’s footsteps. While Aldous was penning *Brave New World*, his treatise on how science may affect human life, Julian was similarly studying “concepts of evolution and growth, dealing with them in the light of the philosophic problems generated by contemporary scientific developments;” he also made important connections between genetics and evolution (“Sir Julian Huxley”).

Meanwhile, after the death of his first wife, Julia, Leonard Huxley remarried; his first son by this new marriage was Andrew F. Huxley, the 1963 Nobel Laureate in Physiology or Medicine. In 1932, the year that Aldous’s *Brave New World* was published, Andrew went to Cambridge planning to major in the physical sciences; an “extra” course in physiology started him on the professional path that was to lead to the collaborations that would, in turn, lead to his Nobel Prize (“Andrew F. Huxley”).

Aldous Huxley himself obviously grew up in a family of the intellectual elite in England, and this likely affected his own life and his writing. Huxley had avidly studied science as a child, though he was prevented from becoming a surgeon by an eye illness that left him nearly blind. Eventually, his family history and scientific interests, as well as some moral obligations to fight the “class-instituted slavery” he saw around him, were evidenced in his writing, especially in *Brave New World* (“Aldous Huxley: The Author and his Times”).

As an adult, Aldous also had some very impressive friends, including the early 20th century geneticist J.B.S. Haldane. Haldane was an “innovative pioneer” in population genetics whose “brilliance” helped define the field, which “reshaped modern evolutionary biology” (Milner). He also published a work of fiction, *Dædalus*, which discussed the scientific possibility of “test tube” or “ectogenic” babies; this “shocking science fiction” was a commercial success and may have inspired Huxley’s “decanted” babies in *Brave New World* (Milner).

Aldous Huxley certainly belonged to a world in which thoughts and conversations of science and its potential effects on mankind were prevalent. In the paper written in Lesson Plan One, students will determine whether Huxley's presence in this world qualified him as a believable scientist and thus whether or not we can think of *Brave New World* as a prediction or a legitimate warning. The parallels between *Brave New World's* "World State" and today are such that the novel will likely be approached as "probable," by most students, though some may feel, at this point, that his credentials are lacking. If this is the case, the teacher can return to the "What Makes a Believable Scientist" chart periodically throughout the novel and continue to debate Huxley's qualifications.

Science in *Brave New World*

For a teacher wishing to develop an interdisciplinary unit with *Brave New World*, there are many topics in biology and psychology that can be addressed. Huxley was obviously very well-versed in science, and, therefore, much of the "progress" in his novel can be compared to scientific advances made since 1932, with the exception of physical sciences; Huxley does not address nuclear fission or some other ideas that were known at the time, as they did not apply to *society* directly. Science is a "sustained presence in Huxley's texts or has a crucial impact on the plot.... [In *Brave New World*] scientific ideas, method and practitioners are [featured prominently] and Huxley sets out to predict what would happen if the scientific method were applied to an entire culture" (Deery 30).

Huxley himself stated that the theme of *Brave New World* is "the advancement of science as it affects human individuals....scientific advances [that are] specifically described are those involving the application to human beings of the results of future research in biology, physiology and psychology" (Huxley, Foreword xi). In *Brave New World*, the World Controller tells us that their society advanced only when "the Controllers realized that [brute] force was no good;" ectogenesis, neo-Pavlovian conditioning and hypnopædia, combined with the wonder drug soma ("all the advantages of Christianity and alcohol; none of their defects;" "a holiday from reality") create a perfect, scientifically regulated, peaceful, and happy World State (Huxley 50, 54).

Teachers can choose to delve into any or all of the scientific topics described below, dependent upon time and teacher/student interest. As this seminar is entitled "One Cell to Many," I will be focusing primarily on "in vitro" fertilization, cloning, and the basics of stem cell potential. These topics are discussed in more detail below and in Lesson Plans Two, Three, and Four.

"In vitro" Fertilization / Assisted Reproduction

Huxley had obviously been thinking about ectogenesis (a creation of mammalian life outside the womb) long before he wrote *Brave New World*. In his 1922 novel *Crome Yellow*, the philosophic Mr. Scogan grabs the attention of the young people in the room by discussing where the world may be heading:

An impersonal generation will take the place of Nature's hideous system. In vast state incubators, rows upon rows of gravid bottles will supply the world with the population it requires. The family system will disappear; society, sapped at its very base, will have to find new foundations; and Eros, beautifully and irresponsibly free, will flit like a gay butterfly from flower to flower through a sunlit world. (50)

In *Brave New World*, Huxley creates this world in which ectogenesis and "test tube babies" are taken for granted – and have been for hundreds of years "after Ford."

In our society, “in vitro” fertilization was developed not to be able to mass produce children as in Huxley’s world, but to assist women whose oviducts are blocked in being able to have children. Female reproductive cells are “surgically removed following hormonal stimulation of the follicles,” then fertilized in a laboratory before being placed back in the uterus and allowed to implant (Campbell and Reese 995). This procedure has a high rate of success, and embryos can be frozen for later use if the first attempt is not successful (Campbell and Reese 995).

Students may be intrigued by the details of “in vitro” fertilization, especially since there may be stigma involved in having been a “test tube baby” or having to “resort” to a procedure that some see as unnatural. Also, this topic can lead to heated discussions about ethics: some couples choose to use oocytes [cells that, after fertilization by sperm, become ova (Campbell and Reese 984)] donated by another woman to be fertilized by the male partner’s sperm, some couples fight custody battles over embryos that were frozen but not used (Lemonick 3), and some face the dilemma of what to do with the embryos left over after a successful pregnancy (Lemonick 3). There are also religious implications; Huxley himself hints in *Brave New World* at the ethics surrounding these topics: the World Controller mentions that scientists “had got the whole technique [of ectogenesis] worked out. But would the Governments look at it? No. There was something called Christianity. Women were forced to go on being viviparous [having children develop within their bodies]” (46).

Students do not need to know the particulars of the science behind “in vitro” fertilization or other methods of assisted reproduction in order to understand this novel or to succeed in this unit. However, the topic is an interesting and debatable one; it can keep students interested and encourage them to form educated arguments about a topic that is popular in the news today. For details on how to further incorporate this topic into the unit, see Lesson Plan Two below. Discovery Education also has a clear lesson plan for teaching “in vitro” fertilization; though it is designed for a high school science class, the material can be grasped in an English classroom as well (Clem). Students may also find it interesting to read “The Curious Lives of Surrogates,” a popular media article about women (mostly military) who give birth to other people’s babies, and discuss additional ethics involved in this procedure (Ali and Kelley).

Bokanovskification and Cloning

Even more controversial than “in vitro” fertilization is the idea of cloning (similar to Huxley’s “Bokanovskification”), especially since it is often a word that is used loosely in debates and about which the public knows little. Though our world does not mass-produce children as does the World State in *Brave New World*, there are aspects of current research where parallels can be seen. Reproductive and therapeutic cloning can both be linked to *Brave New World*, since the World State creates beings and has practically eliminated dying from disease. Scientists have been discussing the potential of cloning for years: decades ago, “Prof. James Bonner (California Institute of Technology) told a seminar of science writers that it would be possible, in the not-too-distant future, to produce a master race of super-babies, called clones, by growing them in labs” (Ramamurty 91). Though most scientists would agree that these “super-babies” are not an impending threat, the media and politicians generalize and exaggerate enough that our students are not sure what is or is not possible when it comes to cloning. Therefore, the topic is a valuable one for students to grasp; cloning has many ethical and moral debates around which students could rally, as well.

The “cloning” most people think of when they hear the word is reproductive cloning, which is used to “generate an animal that has the same nuclear DNA as another currently or previously existing animal,” but it is expensive and highly ineffective (*Human Genome Project*). The animals that donated adult cells are only mostly replicated:

Only the clone's chromosomal or nuclear DNA is the same as the donor. Some of the clone's genetic materials come from the mitochondria in the cytoplasm of the enucleated egg. Mitochondria, which are organelles that serve as power sources to the cell, contain their own short segments of DNA. (*Human Genome Project*)

This, on the surface, appears similar to the Bokanovsky process, but the mitochondrial DNA and their mutations would appear to disallow the Bokanovsky process from actually occurring today. However, if the rates of success can be improved, “(Dolly was only one success out of 276 tries), reproductive cloning can be used to develop efficient ways to reliably reproduce animals with special qualities. For example, drug-producing animals or animals that have been genetically altered to serve as models for studying human disease could be mass-produced” (*Human Genome Project*), which does suggest that our world may be able to replicate Huxley’s factory-created Deltas and Epsilons eventually.

Another kind of cloning, therapeutic cloning, produces human embryos for use in research, not to create cloned human beings, but “to harvest stem cells that can be used to study human development and to treat disease” (*Human Genome Project*). Unlike Huxley’s Bokanovskified embryos, the embryos used in therapeutic cloning are destroyed when stem cells are extracted from the egg after it has divided (*Human Genome Project*). “Therapeutic cloning technology may some day be used in humans to produce whole organs from single cells or to produce healthy cells that can replace damaged cells in degenerative diseases such as Alzheimer's or Parkinson's” (*Human Genome Project*), which suggests that Bokanovskification may be out of reach, but that science may create Huxley’s “social stability” artificially – where the upper echelons of society will be able to afford to rid their offspring of diseases (creating healthy and more worry-free Alphas and Betas), but the less fortunate will be relegated to lives of poverty and loss (though not likely as content as Huxley’s conditioned Gammas, Deltas, and Epsilons). This cloning is likely to be less controversial in the classroom, but it may also raise questions among the students about the role that socio-economics play in medical care: who will be able to receive these organs and/or cells? What will it do to a society already divided by wealth?

Because cloning with its moral, ethical, and socio-economical issues is another high-interest topic, students will do a collection of readings about cloning (see Lesson Plan Three below for more detail) in order to form educated opinions about the topics so that they can discuss pros and cons of both reproductive and therapeutic cloning in both our world and in the *Brave New World*'s World State. They will be able to learn enough of the processes to educate others in the reality of cloning and to argue their opinions using sources as support. This can also develop into an interdisciplinary activity with a Biology or Economics teacher, dependent upon time and teacher and student interest.

An Introduction to Stem Cells

Stem cells have been popular in the news, especially with the controversy surrounding President George W. Bush’s refusal to use federal funds for stem cell research. This is a very important topic, and one that will likely dominate science headlines for years to come. Stem cells themselves are not mentioned in *Brave New World*, but some of what stem cells may be able to do for humans today is implied to have happened in the years “After Ford” in the novel. This lesson will be taught toward the end of the *Brave New World* unit, since the topic is merely hinted at in the novel; this is a case where the science was not in Huxley’s book, so the students will be using the novel as a starting point for their further study. The teacher will teach an introduction to stem cells – what they are and what their potential may be – so that students can become educated members of society and can make choices about this divisive topic without relying on media, which may skew the issue (See Lesson Plan Four below for details).

Stem cells, simply, are cells that have the potential to develop into multiple cell types in the human body; they can theoretically divide an unlimited amount of times to replenish other cells in the body (*Stem Cell Information*). What is so amazing to the general public is that when a stem cell divides, each new cell has the “potential to either remain a stem cell or become another type of cell with a more specialized function,” anything from a muscle cell to a red blood cell (*Stem Cell Information*).

The controversy around stem cells comes primarily from a lack of understanding of the facts. The general public hears the words “embryonic stem cells” and can picture “mad scientists” like something out of a B-movie version of *Frankenstein*, “stealing” cells from babies or aborting babies on purpose to harvest their cells. In fact, embryonic stem cells come from “embryos that develop from eggs that have been fertilized *in vitro*—in an *in vitro* [fertilization](#) clinic—and then donated for research purposes with informed consent of the donors. They are *not* derived from eggs fertilized in a woman's body” (*Stem Cell Information*). Studying these cells “may yield information about the complex events that occur during human development;” this, in turn, may help scientists determine how diseases like cancer arise and may suggest ideas for therapy (*Stem Cell Information*).

The characters in *Brave New World* live in a society where debilitating disease has been wiped out and where death primarily is caused by old age – and high school students should have no difficulty seeing a resemblance between where our stem cell research can take us and where the advanced technology in the novel did take them. Upon completing their study of *Brave New World*, students will likely see Huxley’s “world state” as a dystopian society, and that will pose questions about where our stem cell research may take us.

***Eugenics and “Designer Babies”*: Creating “better” beings?**

Though not a modern scientific concern, eugenics might be an interesting topic for students to consider. Students will likely be quite interested to know more about the idea of creating a stronger human race by various means, including killing the weak and mentally handicapped and/or not allowing them to reproduce. (See *Image Archive on the American Eugenics Movement* for details and ideas for lesson plans). (See also discussion of population control below). What was surprisingly popular in the early 20th century could be compared to the more modern idea of “designer babies,” where it is predicted that parents will one day be able to have the genes of their unborn children “adjusted” in order to “create” a human being with certain desired qualities.

Parents and doctors can now screen embryos for genetic disorders, but, according to “Design a Baby,” the fear is that “in the future we may be able to use [these same technologies] to modify embryos and choose desirable or cosmetic characteristics.” [It should also be noted that the term “designer babies” is one used by journalists, not scientists (“Design a Baby”)]. There is a fear that:

If gene therapy leads up to its promise, parents may someday be able to go beyond weeding out undesirable traits and start actually inserting the genes they want....Before [this] millennium is many years old, parents may be going to fertility clinics and picking from a list of options the way car buyers order air conditioning. (Lemonick 1)

For my students in their relatively poor urban setting, the idea of “designer babies” also can lead to animated discussions about the possibility that society will clearly split into two camps, those with and without designer genomes (Lemonick 4); students can research pros and cons of gene therapy and initiate debates on the topic as well, which links into a discussion of stem cell research (see above and Lesson Plan Four below). Of course, upon researching, students will find that the science behind creating “designer babies” is not sufficiently understood to make this reality in the near future. But because the

topic is a popular one in the media, it is still valuable for students to be educated and to be able to have informed discussions.

Population Control

Though the topic may be a controversial one, some students may benefit from a learned discussion on the methods of population control in *Brave New World*. Its World State controls whose genes are used to “create” babies and who is “born” sterile, since they deem fertility a “nuisance” (Huxley *BNW* 11). Approximately 70% of the female embryos receive male sex hormones periodically so that they are “decanted as freemartins – structurally quite normal...but sterile. Guaranteed sterile. [This brings the World State] out of the realm of mere slavish imitation of nature into the much more interesting world of human invention” (Huxley *BNW* 12). In this manner, the government completely controls the population of the entire world because the government decides which ovaries are “allowed” to be used for reproduction – always in the factories.

Huxley hinted at beneficial methods of population control in *Crome Yellow* when the aforementioned Mr. Scogan stated that:

...the goddess of Applied Science has presented the world with another gift, more precious even than [cinema and pistols] – the means of dissociating love from propagation. Eros, for those who wish it, is now an entirely free god; his deplorable associations with Lucina [Roman goddess of childbirth] may be broken at will. In the course of the next few centuries, who knows? The world may see a more complete severance. (50)

Similarly, while the fertile women in *Brave New World* must follow a strict regimen of birth control medications called a Malthusian drill, Mary, a progressive young woman in *Crome Yellow*, tries to talk to a woman who had “three children in thirty-one months” and tell her about the “Malthusian League” (281). Students maybe have studied Thomas Malthus’s concerns about population growth in their Economics class and can read more about his philosophies as an extension to this topic.

Aldous Huxley, like Malthus, was concerned about the effects of overpopulation on a society. Though *Crome Yellow* and *Brave New World* address methods of “Malthusian” birth control, in reality, “birth control depends on the co-operation of an entire people...it demands [more] than most of the world’s teeming [masses] can now afford” (Huxley, *Brave New World Revisited* 5). Their population then grows at a faster rate than others, and their children in many cases cannot be “adequately housed, educated or fed,” so their lives are ruled by undernourishment and overcrowding (Huxley, *BNWR* 15). This is an idea that will resonate with my urban students, who live in neighborhoods where much of these statements by Huxley are visible on a daily basis, though they will likely find that Huxley’s statement (*BNWR* 5, above) reflects a stance that comes off as bigoted by current standards; this might also lead to fruitful discussions regarding imperialist attitudes toward Third World countries, or conversely, of the positive effects on a country’s standard of living when women are allowed to control their own fertility. These ideas may be deemed contentious, but students are likely to be very interested in debating the pros and cons of these methods of controlling population; they can research this in conjunction with climate change, famine, economics, or any other topics that are of interest in the news today.

The Overuse of Legal Drugs in Society

While Aldous Huxley created soma, the “perfect drug” with no negative ramifications, Western society is on a seemingly endless quest to create its own “perfect drugs.” Any student who watches television has likely been inundated with advertisements for various medications that claim to improve the quality of human life somehow, and many will be familiar (if only through movies) with the quests of

many in the 1960s (including Aldous Huxley, as can be seen in his essays “The Doors of Perception” and “Heaven and Hell”) to find happiness of any kind, even pharmacological. In *Brave New World*, “Science...believes that happiness consists in catering to the physical and physiological needs, and the only psychological need it recognizes is the need to fill up leisure and avoid boredom. This is fulfilled through games, the ‘feelies’ and the ‘soma’ ration” (Ramamurty 94).

Lessons on this topic could include researching drugs like Ritalin and Adderall, which are used to treat ADD and ADHD and often overused to calm immature students (at the suggestion of parents and/or teachers) or to improve concentration and thus academic performance (see Foer). Students interested in history or music could also study Grace Slick’s song “White Rabbit” and its veiled criticism of parents in a society where “One pill makes you larger, and one pill makes you small,” but the lyrics caustically suggest that “the [pills] that mother gives you don’t do anything at all” (Jefferson Airplane). Students who are athletes may be interested in researching addictions to pain killers or “nutrition” shakes that are so often used and discussed in high school locker rooms. Finally, any student can study the science behind addiction, as is mentioned in “The New Science of Addiction.”

Students and teachers can use any of the topics in this section to conduct research and complete an informational pamphlet that students can distribute to their peers or to local health agencies.

Social Behavior in Animals

One of the main tenets of *Brave New World*’s World State is social stability: “No civilization without social stability. No social stability without individual stability” (Huxley 42). Bokanovsky groups in the novel behave like some altruistic animals do: the animals “behave in ways that reduce their individual [possibilities for reproduction] and increase [those possibilities in] the recipient of the behavior,” whereas the lower-caste Bokanovsky groups toil for the good of the overall society (Campbell and Reese 1145). In fact, even the upper castes in *Brave New World* are not all that different from the image of a worker bee returning to the hive, dancing, and exciting the rest of the bees and motivating them to leave the hive, in a group, and search for nearby food (Campbell and Reese 1143): “Buzz, buzz! the hive was humming, busily, joyfully. Blithe was the singing of the young girls over their test-tubes, the Predestinators whistled as they worked, and in the Decanting Room what glorious jokes were cracked above the empty bottles!” (Huxley, *BNW* 149). Just as many animals, including ground squirrels and naked mole rats, engage in social behaviors that are altruistic, the citizens of the World State are not encouraged to “indulge” in solitary amusements (Huxley 166).

Students may be interested in the idea of either altruistic behavior of animals or in the idea of humans acting like social insects; anyone who spends time around large groups of humans (especially high school students) has likely seen such behavior. This can also be a place for an extension project on anything from how advertising controls the masses to peer pressure and fitting in at school.

Behavioral Conditioning

For students and teachers who are interested in psychology, there is a great deal of social conditioning in Huxley’s *Brave New World*; in fact, its sleep teaching, “hypnopædia,” is called “the greatest moralizing and socializing force of all time” (28). All caste members in the World State experience years of conditioning to “train” them as society wants them to be trained; “books and loud noises, flowers and electric shocks – already in the infant mind these couples were compromisingly linked; and after two hundred repetitions of the same or a similar lesson would be wedded indissolubly” (Huxley, *BNW* 21). Students may argue that they, to some extent, are similarly conditioned by parents, teachers, politicians, or religious leaders.

Teachers and students interested in this topic can bring the practices of B.F. Skinner and/or Ivan Pavlov into the classroom, and can maybe have some fun in designing small and harmless experiments around making their classmates behave a certain way in order to get some kind of reward.

Conclusion

There are so many topics of relevance from which teachers can choose that this unit has a great deal of flexibility. Teachers can use any or all of these subjects and intersperse them throughout the novel; some, like the background on Aldous Huxley, will serve well as introductions to the unit, and others may serve as final research papers or projects. All will involve at least minimal research on the part of the students, and many can conclude with debates or formal research papers. No matter the order in which they are taught – all of these will link to the main objectives of the unit and will keep students engaged and interested throughout their study of Aldous Huxley’s *Brave New World*.

LESSON PLANS

Lesson Plan One: Introductory Biographical Research / Persuasive Paper: Is Huxley a Scientist?

Objectives

The students will be expected to meet the following objectives, based on the Texas Essential Knowledge and Skills for 12th grade Language Arts (see Appendix A): 3e, 8g, 14d and 14f.

Materials and Resources

Teachers will need a pad of large sticky notes and some markers for students to use when brainstorming what it means to be a “legitimate scientist.” Students will need access to reference books and Internet research tools, and they will also need a resource to remind them how to document their research properly using Modern Language Association (MLA) formatting (see suggestions in “Student Resources” section of Works Cited).

Procedures and Activities

Before beginning research on Aldous Huxley, students will first brainstorm to determine what it means to be a “credible” scientist. The teacher will introduce the subject by mentioning popular science topics in the news today, like global warming / climate change or stem cell research. Who do we, as the lay public, trust to tell us about these topics in an unbiased and knowledgeable way? Do these people need to be educated? Trained? Conducting research in the field? Well spoken? Evaluated by their peers? Students will gather in small groups of 3 or 4 and list the qualifications they feel are necessary to make a “trusted” scientist. After a few minutes of brainstorming, the class will come together and create a chart titled “What makes a ‘believable’ scientist?” Groups must agree with everything that will go on this chart, as it will remain up during our study of *Brave New World*, and we will constantly refer to it as we try and determine whether or not Aldous Huxley meets our qualifications. This can likely be done within one 45-minute class period.

The major task that students will complete during this lesson is a brief research paper on Aldous Huxley. They will research biographical information as well as some critical resources in order to answer the question: Is Aldous Huxley a scientist, or does he have enough scientific knowledge to make the science in his novel *Brave New World* believable? This question is important to answer before students begin reading *Brave New World* because the purpose of this unit is to consider this novel almost a prophecy and to compare it to our own society, and this can’t be done without some evaluation of Huxley’s capabilities.

The teacher can reserve a few periods of library time for students to begin their research, but much of the work will be done at home.

Assessment

Students will compile their research into a brief (approximately three to five page) persuasive paper which will be graded on a rubric that contains content (did they answer the question and support it well; did they use appropriate sources) as well as format (did they use proper parenthetical documentation and a Works Cited Page), and grammar, spelling, and related usage.

They will also present their arguments to the class, one at a time (to be graded on a brief rubric that assesses their clarity as well as their support for their arguments). Students who are arguing that Huxley *is not* a qualified scientist will present their evidence first, and this evidence will be charted on a large piece of sticky paper. Those who support Huxley as a scientist will respond, also having their evidence charted. The students will then use the documented evidence to determine if they, as a class, should read *Brave New World* with the confidence that Huxley's science is believable – and we will return to these charts throughout our study of the novel.

Lesson Plan Two: “In vitro” Fertilization and Assisted Reproduction

Objectives

The students will be expected to meet the following objectives, based on the Texas Essential Knowledge and Skills for 12th grade Language Arts (see Appendix A): 2c, 8g, 11b.

Materials and Resources

Students will need copies of at least two basic informational articles that will teach them what “in vitro” fertilization is and what some of its risks are. Jairo Garcia’s “In Vitro-Fertilization” or one of the “In Vitro Fertilization” introduction websites is a great place to start for a non-biased introduction. Teachers may also want to provide sets of articles from alternative sources, such as a piece from a religious organization (see “Pope Speaks Again”) paired with one from a facility that makes money by completing the procedure.

Procedures and Activities

In one 95-minute class period, students will read and annotate the given articles on “in vitro” fertilization (IVF). Within small groups, they will discuss and/or write what they have learned with guided questions from the teacher. (What is IVF? Who undergoes the procedure? How often is it done? What are the risks involved with IVF? What are some of the pros and cons of the procedure? Who might support it, and who might not?)

Once students have a clear idea of what IVF is and they understand its pros and cons, they will be assigned a persuasive writing paper: *Do you support IVF and why?* They will write it in the form of a letter to the editor of a major national newspaper or magazine, and each student will be asked to write from a specific point of view. The teacher can assign specific points of view to individual students if the desired outcome is to have students argue specifically with (or against) their own views, or “characters” can be drawn from the proverbial hat. Points of view can include (but should not be limited to) the following: a 40-year-old childless married woman who has always wanted children, a 25-year-old single man who can’t stand his nieces and nephews, Thomas Malthus, Lenina Crowne or John “the Savage” (from *Brave New World*), a teenaged Catholic girl, the President, or a rabbi. This point of view paper

should include as many facts as possible from the primary sources the students read, and thus will need to contain MLA formatted citations as well.

Teachers can also assign students to prepare sides of a debate in addition to or in place of the position paper.

Assessment

The students' position paper can easily be graded with a rubric. Texas has a 4-point rubric for its standardized TAKS test, and this can be modified to contain relevant sections like proper use of MLA formatting.

This assessment will be a formative one, as it is a good opportunity to determine how much of the science the students understand. From here in the unit, they will continue to study biology (cloning and stem cells), and the teacher may need to do some recursive teaching of the basics behind some of these methods. Also, students can have an opportunity to rewrite drafts of the paper in order to better master the lesson objectives.

Lesson Plan Three: Teaching the Basics of Cloning

Objectives

The students will be expected to meet the following objectives, based on the Texas Essential Knowledge and Skills for 12th grade Language Arts (see Appendix A): 2c, 8g, 11b.

Materials and Resources

Teacher will need to create a PowerPoint presentation presenting the general information that students need to know about cloning. (If the teacher does not feel comfortable presenting this material, there are plenty of "student-friendly" articles that can be read so that students can discover the material themselves). This presentation (or these articles) should define reproductive and therapeutic cloning (as described in "Bokanovskification and Cloning" above), outline the fundamentals of how each procedure works (and how well), and discuss possible benefits of the research that is being done. (See also teacher resources below for other articles that can be of benefit).

Students will need either access to computers and publishing software or arts and crafts materials with which to make brochures. Teachers may also want to provide pamphlets from clinics or from drug companies so that students have a model from which to draw.

Procedures and Activities

After the PowerPoint or introductory reading, students will be asked to create an informational brochure that teaches the general public about cloning. This is a popular term in the media, one about which people make decisions without really knowing the facts. Students will need to use terminology that will be familiar to the average citizen and should strive to remain neutral in their descriptions.

Pamphlets can be used as a teaching tool; students can visit middle school classrooms or give presentations with non-profit groups and bring their knowledge into the public's eye. Bilingual students can also translate their material into their native language(s) in order to make the message even easier to understand across our diverse population.

Assessment

Student pamphlets will be graded using a rubric that assesses the following topics: Has the student understood cloning? Has the student kept a neutral tone throughout the pamphlet? Has the student presented information clearly and concisely? Has the student created a neat and usable product? Has the student used language appropriate for the audience? Has the student followed the rules of Standard English grammar, usage, etc.?

Lesson Plan Four: Introduction to the Potential of Stem Cell Research

Objectives

The students will be expected to meet the following objectives, based on the Texas Essential Knowledge and Skills for 12th grade Language Arts (see Appendix A): 1f, 8g, 14g.

Materials and Resources

Teachers will need to provide introductory information on stem cell potentials, in the form of a PowerPoint presentation or student-friendly reading (see details in “An Introduction to Stem Cells” above).

Procedures and Activities

Because stem cells are so often in the news and are so controversial with the American public, it is important that students thoroughly understand the big picture of what is meant by “stem cell research.” Students need not understand the specifics or mechanisms involved, as those are very technical and constantly changing, but they should have a passing knowledge so that they can make informed decisions when this topic is involved. Huxley said that “literary artists were under an intellectual and moral obligation to engage with science and explicitly refer to [it] in their writing in order to heal the division between what later became known as the ‘two cultures’” (Deery 2). In other words, we, the general public, know so little about science that a gulf has developed between scientists and the rest of us. How can we make informed decisions about health care, about politics, about donating money to causes, if we know so relatively little?

After the introductory lesson, teachers can provide questions for students to answer: *What is a stem cell? What are embryonic and adult stem cells, and what is the difference? What are scientists hoping stem cells can do for them / us? What makes these procedures so controversial? How much of this information is known by the general public (i.e. not students who have recently taken or are currently taking a biology course), and why might this add to the controversy?*

Students will explore the disconnect that our society seems to have with science, and what it might mean for where our society is headed. Details of the assignment are below.

Assessment

This assignment will bring us full circle; we began this unit by researching Aldous Huxley’s background to determine whether or not his qualifications would allow us to read *Brave New World* as science. We will end it by answering a similar question: *Based on all that you have learned about Aldous Huxley and about stem cell research, how would Huxley feel about the fact that the general public is so removed from what is really happening with stem cells today? Would he be alarmed, would he not be concerned, or would he just tell us that we are on our way to his “Brave New World”? Explain.*

Students' essays will be graded on a standard Advanced Placement English Literature or similar rubric addressing organization, development, grammar/usage/etc., and support of arguments. This assignment can be used as a summative assessment to the unit.

APPENDIX A

Unit Objectives

From the Texas Essential Knowledge and Skills for 12th grade Language Arts (“Texas Essential Knowledge and Skills for Language Arts and Reading”):

Writing

The student is expected to:

- 1f – organize ideas in writing to ensure coherence, logical progression, and support for ideas.
- 2c – use vocabulary, organization, and rhetorical devices appropriate to audience and purpose.
- 3e – use a manual of style such as Modern Language Association (MLA).

Reading

The student is expected to:

- 8g – draw inferences and support them with textual evidence and experience.
- 11b - use elements of text to defend, clarify, and negotiate responses and interpretations.
- 12f - connect literature to historical contexts, current events, and his/her own experiences.

Research

The student is expected to:

- 14d - evaluate the credibility of information sources and their appropriateness for varied needs.
- 14f - produce research projects and reports in varying forms for audiences.
- 14g - draw relevant questions for further study from the research findings or conclusions.

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