

Exploring Philosophy, Ethics, and Self

Patricia M. Garrett
T.H. Rogers School

INTRODUCTION

School, Setting and Students

I am fortunate in having a teaching position within a unique pre-kindergarten through eighth grade school campus. Our several distinct populations, ranging in age from three to about twenty years, include the multiply-impaired, oral deaf, profoundly deaf, and vanguard (gifted-talented) students. Wheel chairs and special playground equipment are very evident. Our school is not a neighborhood school; all students are bused or parents provide transportation. Our gifted and talented students apply to their vanguard school of choice and are accepted through a complex rating system and lottery type selection process.

As a fifth grade vanguard mathematics and science instructor, I team teach and work closely with two other teachers, who share duties as English language arts, reading, and social studies instructors. At fifth grade we have about fifty students, many of whom have been at our school since kindergarten. About twenty-five new students are brought into the program at fourth grade and about ten new students enter at fifth grade, with a large influx at the middle school level. Very few, if any, students leave before the year is completed. Our vanguard elementary school could be considered a small school situated within a large campus. Our fifth grade vanguard students are an ethnic mix of Asians, Hispanics, African Americans, and Caucasians. They bring a wide variety of background experiences and talents into our classroom. There is about an even mix of boys and girls whose average age is ten. Some of our students have unique needs and additionally have “special education,” or “limited English proficiency” as well as “gifted and talented” descriptors. An accelerated and differentiated curriculum is provided for our students who need and desire innovative and challenging work despite any other issues. When creating units, we consider the educational applications of Gardner’s *Multiple Intelligences*, as well as follow objectives mandated by our district and state to incorporate depth and complexity into our lessons.

I believe our unique school setting gives us a first hand opportunity to address philosophical and ethical issues, such as the care and education of those who outwardly appear unable to benefit from such experiences, as well as opportunities to provide service to those less fortunate than ourselves. Although we participate in many activities with the fifth grade deaf students, we haven’t interacted much with the multiply-impaired students, aside from the occasional help with a wheelchair. This year our students sent a personal tribute to our fellow fifth and fourth grade deaf students when their teacher-aide died unexpectedly. We were very impressed with the impromptu condolences expressed by our students through their poems and notes. I would like to further promote this type of interaction by having the students explore the meaning of empathy.

PURPOSE

It is my desire to design a unit for my students that will help them become more cognizant of others, not only in our school, but in the world around us as well. It is for this reason that I chose the Houston Teacher Institute class, *Philosophy, Ethics, and Self*.

Many of the multiply-impaired students are gravely ill when they enroll at our school, and each year a current or past student and/or teacher is remembered in a commemoration celebration wherein a rose bush is planted, and a poem or song is read or sung. Because we have a yearly remembrance program, the philosophical topics of death, dying, and the meaning of life could be appropriately addressed with my students. Perhaps then, our students could elect to take a more meaningful part in the yearly remembrance celebration.

I have observed that students, especially ten year olds, have very strong opinions of right and wrong and of that which is fair. Their games are rule directed, and changes in rules or directions are not always handled easily. For example, when solving mathematical problems, I like to have the problem numbers for each question inside the red line of the left margin in order not to confuse these numbers with the numerical answers. The answers are to be lined up next to the problem numbers with any necessary accompanying work to the right of each answer. This is not an easy task for students accustomed to doing it differently for the other teachers. Even with a sample sheet, and directions in full view, there are those who still do their work as they see fit, and even lowered scores do not alter their mind-sets.

With this image in mind, I believe my students will delve passionately into debates of what is good or bad, right or wrong, and just or unjust on ethical issues of scientific discoveries, such as genetic engineering or cloning, experiments that lead to the use of animals for testing purposes, or theories that have strong opposing views, such as evolution or global warming. My students are bright, curious, and, as gifted learners, they require thought-provoking and creative work. Many already are attuned to new concepts in science, and issues such as the number of planets in our Solar System and whether Pluto is or is not a planet, have already been addressed in class along with the mention of black holes and quarks.

My current strategy for dealing with topics, of which I have no definitive knowledge, nor the time to discuss them at that moment, is to point to my *Geaux Phynd Owt* (go find out) sign and have the students find facts to share in class the next day. It works very well; I am able to continue with the current topic or lesson without stifling their curiosity. My students are from diverse ethnic backgrounds, and we have fun playing with the English rules for spelling and pronunciation, since it is often a misinterpretation of written words which causes the mistakes in understanding mathematical or scientific questions. Hence the spelling for our “*Geaux Phynd Owt*” board.

I had always thought of a teacher as being all knowing, and then, once I became one, realized how untrue and unrealistic this concept was. At first it was difficult for me to admit that I did not know an answer to a student’s question, but now I am very comfortable with saying, “Gosh, I don’t know, where do we find the experts in this field? How can we find out?” Now anytime a student seeks an answer to a question not immediately available, they sing out, *Geaux Phynd Owt*. And that is exactly what they do. At least three or four students will show up the next day with information gleaned from the Internet, or a parent, and I must admit I have learned some really interesting things in this manner.

BACKGROUND KNOWLEDGE

What I Needed to Learn

If the fortunes of a nation rest on the ability of citizens to understand and use information about the world around them (Kennedy, et al. viii), then it is incumbent upon us, especially those of us who teach, to be cognizant of the current trends within the discipline(s) that we teach. As a fifth-grade science and mathematics teacher, I am constantly made aware of the many issues my students are more knowledgeable about than I. For example, it was when we discussed mnemonics in order to remember the names of the planets in order from the sun, that my class

erupted into a lively discussion of whether Pluto was indeed a planet, or if in fact there were others not mentioned in our science textbook. At this point (or one similar to it), we discuss the age of the textbook, and how long it may take to write one and then have it approved and published. We also estimate how “current” its information could be. Next we talk about where the students learned about Pluto not being a planet, etc., and talk about where to find suitable sources of reliable facts, and how scientists or experts reach their conclusions. We often discuss the language of the discipline and how one word may take on different meanings within different disciplines or topics. I usually begin with a sample word such as “bank” with regard to money, a river, a race track or other road bed, or when it implies being able to depend on an outcome. We strive to use precise language within each discipline. Our goal is to become better communicators, both orally and in our written work.

Now, it seems, my greatest fear is no longer not knowing something, it is the fear of passing on incorrect or misleading information to my students. With this in mind it is important that I understand the semantics pertinent to the topics I wish to introduce to my students.

My first confusion came while researching the topic of how to teach evolution to students. In the book *Teaching about Evolution and the Nature of Science*, the authors describe a theory as follows, “In science, the word ‘theory’ refers to an overarching explanation that has been well substantiated” (Kennedy, et al. 4). The theory is usually held to be true, that is, until disproved and another well substantiated theory takes its place. (For example the geocentric theory which stated that the sun revolved around the earth was replaced by the heliocentric theory which states that the earth revolves around the sun.) In this sense the authors want to make a clear distinction between a “guess or hunch” type of theory and the “well-substantiated” one (4). The authors also state, “Ironically, facts in science often are more susceptible to change than theories – which is one reason why the word ‘fact’ is not much used in science.” [sic] This statement comes after describing a fact as “an observation that has been repeatedly confirmed” (5).

Fortunately for me, a hypothesis is described as a “testable statement” and law as a “descriptive generalization of how the physical world behaves under certain circumstances,” such as the laws of motion (Kennedy, et al. 5). Both terms are similarly used in the students’ textbooks. Further reading reveals that the authors’ desire is to present evolution as well-substantiated theory, and not as a hunch or guess.

I believe I need more information about how the words “theory” and “fact” are used elsewhere in a scientific context before passing these terms on to my students incorrectly, or as presented in this application if this is *not* the generally accepted usage. In the quest for information about teaching evolution, I am also reading Bryson’s *A Short History of Nearly Everything* in which many scientific theories are mentioned, many of which are disproved or replaced over time, such as Harvard astronomer William H. Pickering’s “theory that dark patches on the moon were caused by swarms of seasonally migrating insects” (Bryson 130). In addition, I am reading Darwin’s *The Voyage of the Beagle* which details his eventful journey in which he records what he sees without discussing theories of how it came to be. I discovered that Darwin spent many years investigating his theories before he presented them to the public (Karp 11).

The difficulty in developing this unit may lie within what the parents may think I am teaching their children, and the length of time it takes me to finish these books. As to the semantics issue, I believe the best route is to turn the words over to the students for their input. In this way we will establish what the terms mean in our classroom experiences and discover the nuances involved in language and the importance of using clearly defined or recognized terms within the context of that which is being studied.

Recalling the following quotation written by Anatole France, helps get me back on track. “Do not try to satisfy your vanity by teaching a great many things. Awaken people’s curiosity. It

is enough to open minds; do not overload them. Put there just a spark. If there is some good inflammable stuff, it will catch fire” (Van Matre 112).

THE UNIT TOPICS

I envision generating a series of topics suitable for ten year old students to judge as just or unjust, as a good idea or a bad idea. Just enough information to “awaken curiosity” without “overloading them” (Van Matre 112).

As a class we can look at the pros and cons of scientific truths or proposed experiments. For example, a news article “Better Bananas, Nicer Mosquitoes” in the Science section of the *New York Times* featured cutting edge science experiments designed to improve world health. The research is being funded by the Bill and Melinda Gates Foundation. I believe these projects would make great discussion topics for my students. One project hopes to design a measles vaccine in bacterial spores which would allow the vaccine to survive indefinitely and not even need refrigeration. Another project is looking to create mosquitoes that have a shortened life span, thereby dying before they can transmit the deadly dengue disease to humans; a third project is looking to genetically alter the cassava tubers so that they would store nitrogen as protein, rather than the cyanogens which produce cyanide and slowly poison those who eat them unless they first undertake special preparations. The foundation is also backing projects to genetically improve rice, sorghum, and bananas.

I believe these topics can be researched by the students who would be encouraged to investigate the harmful effects of such experiments as well as the desired and beneficial effects. For example, what effect on the food chain would these experiments have? Does a mosquito with a shortened life span impact the bats or other creatures that depend on them as a food source? Will the genetically altered mosquito still fulfill its original niche? Perhaps some unique flower is depending on that mosquito to pollinate and secure its future at a time frame outside the mosquito’s new life span. Will the altered mosquito develop a new niche? Will it have favorable outcomes? Is there a way to predict the future outcomes?

Other questions to ask might be: Is it a good idea to save the lives of people through vaccine, when that may lead to an over populated planet, and thus result in them starving as food supplies dwindle? What are the chances of the measles vaccine and bacteria spores interacting to create a larger problem? Is an act good if the motive is good, even if the consequences are bad?

Bio-engineering or genetic modification of plants and animals begs to be debated in ethical or philosophical discussions. Topics could include: Cloning grain vs. cloning humans; eliminating weak genes in fruit, vs. altering or eliminating weak genes in humans.

I have a video entitled *A Short Course on Biotechnology* that promotes the safety, and promise of a better future through biotech products. The students can analyze and critique the presentation and develop a set of questions not answered in the message. This could carry over into a lesson on propaganda in advertising as well as generate a debate on the ethical issue of biotechnology, or gene modification. For the absolute opposite opinion on these matters I found briefing papers by Genewatch, Friends of the Earth, the Soil Association, and GM Free Wales, Farm in an internet search.

I believe there is a lot of good “flammable stuff” out there, just waiting to be considered. When one scans newspapers or magazine articles, topics for possible discussion fly off the page. I am now keeping a file of suitable topics gleaned from the *New York Times* and *The Houston Chronicle*. How about the question of using taser guns for stunning and subduing unruly suspects? Or perhaps discussing if they would be helpful in subduing unruly high school students? Sometimes the topics are found in the headlines and at other times in the Science or Business sections. For this unit, I intend to collect articles relating to science and mathematics

(as these are my specific teaching areas) as well as incorporate issues of interest to or generated by the students.

I also have access to a video produced by Life Gift Organ Donation Center. The target audience is school children. The video stresses the need for donations from minorities as they represent the greater need. Although I have shown it many times to fifth grade students, we never got into the deeper discussions of donating organs, for example what constitutes brain death, etc. Usually a student will mention a relative on dialysis or one who has died of a heart attack and realize it would have been nice if that person could have been saved through organ donation. One could bring up cloning organs as opposed to donating them. This topic might be more suitable for older students, but that would be the teacher's decision. I am not sure if I would initiate the discussion with ten year olds, but if the discussion started, I would let it continue, as they continue to surprise me with their mature thinking on many issues.

Student Responses

To get a sense of how this class may be conducted with my students, I brought up the subject of "service work" done in high schools and asked my students if they were aware of why this is now required in many high schools. One student said "to get into university, you need it on your application." When I asked what purpose it served, one boy said "to get in." Others countered with, "to help others," "to make you feel good," and similar sentiments. We then discussed the pros and cons. Some were angry about students doing volunteer work for such a "base motive" (university applications). One student said it should be made optional, so that way one would know if a student was doing it for others or for their own gain. Another countered with, "Think of all the good that is done, no matter the reason." Is an act good if the motive is bad (self-serving), even if the consequences are good? We talked about how one knows when one is doing good. Their answers included, "others say thanks, your grades, your mom and dad tell you, and you feel good inside." One student said doing volunteer work might change your choice of vocation, "You might get to like it and continue." I was very impressed with their answers and insight. Several spoke about how they are currently involved through their churches, doing different deeds for the good of others, and one student earned a Girl Scout Silver Star award for service this year. When I asked about how they knew about what was good or what was bad, they said their parents told them. This was a very informative session for me, and now that I know they are more than capable to handle philosophical discussions, I am anxious to work out the format we need to follow for this to be a successful unit.

Developing the Unit

At this point I am not sure about the approach I wish to follow. I am thinking of dividing the discussion topics into two categories: one, the philosophical and ethical issues concerning scientific experiments, and two, interpersonal behavior. This is only a rough division as I keep finding articles that could be placed in either category.

Within the category of interpersonal behavior we could look at issues such as the care and education of those who appear unable to benefit from such experiences. In our school we have students who do not seem to respond to their surroundings, some who can not feed themselves, and those who can not walk or talk. My students pass them in the halls without apparent thought or regard. I have never had one of my students ask any questions about these, their fellow school-mates. What does life mean to them? What are their teachers' expectations for them? What do their parents want for these less fortunate students? Where do they go after, or if, they leave our school? What do their futures look like? We could discuss the purpose of having them attend school and interview their teachers to see what is being done and why. Perhaps this will lead to a deeper understanding of those with whom we share our world, and what part we play in it, and how we might change it if we could.

I would like to include the discussion of meta-cognition strategies and those that address self-awareness and empathy. Topics might include rights and responsibilities, what's just or unjust, and rules – why we do or don't need them, what's fair or not fair, or how we define that which is good or bad. Perhaps an issue, such as cheating, plagiarism, or bullying that has come up in class or at school, could be discussed, and insight into our own feelings about these topics could be the focus.

Introducing Science and Mathematic Topics

We could define and design ethical experiments in our classroom: Perhaps, an experiment to see if playing classical music, Mozart for example, has a calming effect, or an experiment to discover if there is a correlation between high math grades and the ability to play a musical instrument well. The students would have to plan the experiment in such a way as to be fair to all participants. They would need to learn how to frame the questions, keep confidential information confidential, and determine if the results were valid.

Within the category of philosophical and ethical issues concerning scientific experiments, I would include the proposed science experiments regarding improving world health as mentioned earlier as well as science-based articles associated with topics such as bio-engineered or genetically modified foods, using animals in research (National Research Council), genetic screening, global warming, endangered species, etc.

I feel that debating the pros and cons of authentic science investigations will help my students become more aware of the ramifications involved in conducting experiments, and that it will expose them as to how actual scientists conduct authentic research investigations. I have applied to take part in the *Houston Independent School District/Rice Elementary Model Science Lab Intern Program*, with the implicit goal of replicating good teaching practices in the classroom. If possible I intend to integrate this experience into my unit as well, as we will all be a part of that research based program.

Hypothetical investigations could also be introduced. A topic such as the advantages and disadvantages of genetically screening all students entering school could be one such discussion. The students would be required to generate cause and effect scenarios and formulate the questions they feel need to be answered before the project is allowed to begin. We could then decide or at least debate how a decision should be made. Will or must the decision be a moral or ethical one? If it is good for many, is it also good for the individual? As a case in point, one day we discussed the proposed tax on cigarettes that is to go toward funding education in Texas. By increasing the tax on cigarettes, it is hoped that we can lower property taxes. Comments such as "I would not want to see a label in MY textbook that read donated by someone who died of lung cancer!" and responses such as "ugh" and "oh yuck" showed a general disapproval. Another student suggested that a confirmed smoker with children might justify smoking as helping her children with their education! I will definitely file this topic away for discussion with future classes.

A Model to Follow

In Gardner's book *The Disciplined Mind*, he defines the features which embrace his definition of a "good education" for everyone in the world, as "An Uncluttered Perspective: The True, the Beautiful, and the Good" (16). For *truth* he feels we should all understand the theory of evolution, so that we can then think "systematically about a whole range of topics that affect human beings today" (16). Two topical examples he cites are, "the merits and perils of cloning, or genetic counseling" (16).

For *Beauty* he prescribes Mozart, both for the sheer pleasure of listening as well as for being inspired to create or support other creative endeavors (*Disciplined Mind* 17). I would like to test this hypothesis in class. I wonder if my students will be positively influenced by listening to

music composed by Mozart. Perhaps it would have a calming effect if the music was played during some of our district mandated tests.

For *Good*, Gardner suggests that we all have to learn about the Holocaust because “every human being needs to understand what it is that human beings are capable of doing, sometimes in secret, sometimes with pride. And if the Holocaust is mostly an account of unprecedented human evil, there are scattered incidents of goodness and heroism even in that grim chapter” (*Disciplined Mind* 17). I find these suggestions fit very well within the framework of this unit as they address the necessity of critical or systematic thinking as well as moral issues. I have used his suggestions as inspiration for two of the following lessons: one about evolution, the other about the Holocaust.

The controversy about teaching evolution in the schools makes me more curious of what exactly is implied with regard to teaching evolution. One unsettling piece of information I chanced upon was the realization that we humans are not the end result in the survival of the fittest, as that process has not stopped, it continues, so in this context we are located along the continuum, but where exactly is not known. Perhaps my students would relish the idea of designing a future human being, one able to survive in an imagined future world. If humans continue to pollute the world, what adaptations might be necessary millions of years from now (Barlow 23)?

The more I learn about science, the more fascinated I am. It is difficult for me not to think about how the unique interdependence between species was set into being. “Darwin showed for the first time that the beautiful orchid flower is actually a highly useful structure, which lures insects to the plants and sticks the gluey pollen to the insects' bodies to be transported to other orchid plants” (Karp 138). It is intriguing to learn through DNA information how much organisms are alike, when I once felt that this would be just the opposite case.

Hawking, in his book *A Brief History of Time: From the Big Bang to Black Holes*, written to be understood by those without advanced mathematics degrees, attempts to answer questions about where the universe came from, how and why it began, and if it will come to an end, and if so, how? These being questions we all ask at one time or another. As an eleven year old child, I began a poem I have never completed. “I Wonder Why I Was Born to Die?”

I know my students have similar questions to ask, as well as opinions about the answers, and I can't wait to hear what they think!

THE LESSONS

I really liked the title of one of the books I read, *What Do You Think?* (Schwartz) as I think this unit is all about what *they*, the students, think! Therefore, for this unit I will have the students use dedicated journals, entitled, “What I Think!” I especially like the bound composition books as they are less likely to have their pages ripped out for other purposes.

The students will copy a topic sentence from the board or overhead, or attach a copy of a news article into their journal, and write their first response, then share those responses in small groups, adding ideas generated through group discussion. Next we will open it to class discussion and explore the ideas of others.

This would be a good opportunity for using the logic if/then format, as well as to employ graphic organizers in order to help the students sort their ideas. I also foresee a need for developing good open ended questions and avoiding questions which can be answered with a yes or a no (Blosser). I am convinced that how the questions are framed will be the key to conducting a successful discussion.

One source will certainly be the online site, *Philosophy for Children*, (Matthews) which includes helpful sample story starters, and excellent reference materials.

Grading rubrics are helpful tools for students, teachers, and parents. Rubrics should leave no task open for debate. They should include dates and penalties for late or incomplete work. I follow the format my teaching partners use for written responses that include points for spelling, punctuation, fluency, mechanics, and organization, etc.

Below is an example of a rubric adapted from the excellent and easy to use rubric generator found at <http://rubistar.4teachers.org>. It is free to teachers and well worth trying. There are 10 subject areas with drop down menus of suggested tasks which can be easily changed to suit your needs.

Category	4	3	2	1	0
Organization	Establishes relationship between ideas and events	Establishes relationship between ideas and events, some lapses	Establishes some relationship between ideas and events. Minimally complete	No connection between ideas and events Incomplete or confusing	Illegible, blank, off-topic, etc.
Supporting Evidence	Supporting evidence is related to the topic. Two or more examples are included.	Supporting evidence has minor weaknesses in relation to the topic.	Supporting evidence has major weaknesses in relation to the topic.	An attempt has been made to add support, but was unrelated or confusing.	Illegible, blank, off-topic, incoherent, etc.
Elaboration	Rich in specific developed details in every paragraph	Some specific details in most paragraphs	Undeveloped details presented in a list-like format	Elaboration is sparse, almost no details	Illegible, blank, off-topic, incoherent, etc.
Required Items	On time, date, title, name, student #	On time: title, date or student number missing	On time, 2 of the following missing, title, date or student number	One day late date, title, name, student #	Name missing, work is recycled or more than (1) day late

Sample Lesson One

Heading: Ethics, “A Paradox”

Materials

Student’s “What I Think” journal, a copy of the following adapted news article with questions, and grading rubric for each student. Have staplers and several copies of the entire article on hand. Students staple the copy into their journal and follow the directions given. Students may work alone, with a partner or in a small group (4-5)

Title

“Parks Struggle to Keep Wildlife Healthy and Other Interests Happy”

Adapted from a *Science Times* article by Jim Robbins

Location: Yellowstone National Park, Wyoming

Event

Feeding the Elk Outcome: Sick Elk

Background (adapted article).

Managing wildlife disease is a major problem in state and federal parks which are charged with protecting threatened and endangered species. The Park Service has created a rapid response team for diseases, largely because of West Nile virus and avian flu, both of them being diseases that affect people. With people and wildlife sharing the same parks, the problems are compounded.

The feeding of elk began in 1908 because large numbers of elk were starving to death in Jackson Hole, Wyoming. Wildlife managers have been feeding them ever since, and their numbers are well beyond what the range can support naturally.

However, feeding concentrates the elk in such large numbers that brucellosis (a disease) spreads easily and reaches levels ten times as great as the natural rate, or even higher. This disease causes elk cows (females) to abort (lose) their calves (babies).

Another disease, caused by crowded feeding conditions, Chronic Wasting Disease (C.W.D.), is a potentially bigger danger, and has been found in deer only 65 miles away.

Animals identified as having either disease are destroyed.

C.W.D. may be a long-term consequence of the removal of wolves and reduction of coyotes. Parks without predators, including human hunters, may be the most susceptible to C.W.D.

Ranchers are concerned with the safety of their cattle and animals. In 2003 brucellosis spread from elk into cattle and forced the destruction of hundreds of head of infected cows. Wyoming lost its “disease-free status” as did Idaho, and now every cow leaving those states has to be tested. Because ranchers do not want diseased wild animals roaming near their herds, they support the elk-feeding program.

Outfitters and hunters support the feeding program because they want more elk. Tourists visiting the parks like to see healthy elk, and park rangers must protect endangered and threatened wildlife in their parks. They must also work to keep the tourists coming back, as well as keep the neighboring farmers’ and ranchers’ interests in mind.

In your journals respond to the following:

Part A

1. Give an example of a paradox in this article.
2. With a partner discuss and record at least 3 cause/effect events which appear in this article.
3. How do you think the overpopulation of elk in the parks can be controlled?
4. Choose one of the following roles and give your answer to the elk problem.
 - a) If you were a wildlife veterinarian what would you do to control the diseases mentioned in this article?
 - b) If you were a rancher with a large herd of cattle, what would you do to protect your cattle?

- c) If you were an outfitter, who made your living arranging elk hunting trips, what would you like to see happen in Yellowstone Park?
- d) If you were a tourist with young children to protect from disease, why might you visit a Park that contains diseased wildlife?

The teacher can make extra copies of the entire article available to the students if they want more information. When the students are finished with their personal responses they can divide into groups according to the role they chose, and discuss their ideas. Each group can present ideas from their group. Will the class be able to agree on “the right thing to do” to control the elk population and the outbreak of disease? Will the students be able to recognize the role of pathogens and parasites as regulators of abundance? This lesson could be incorporated into a unit on Life or Environmental Science. Defining and recognizing empathy could also be a desired outcome. A possible grading rubric follows.

<p>Grading Rubric Lesson One: A Paradox</p>
<p>Part A</p> <p>1. _____ Give an example of a paradox in this article. What makes this a paradox? Answer in complete and meaningful sentences. (0-20 points)</p> <p>2. _____ With a partner discuss and record at <u>least 3</u> cause/effect examples which appear in this article. Use the if/then format in complete and meaningful sentences. (0-60 points)</p> <p>3. _____ How do you think the overpopulation of elk in the parks can be controlled? Your response should be in paragraph form, with complete and meaningful sentences. (0-20 points)</p> <p>Part B</p> <p>4. _____ Choose one of the following roles: Wild Life Veterinarian, Rancher, Outfitter, or Tourist. When you are finished with your personal responses, find your group according to the role you chose, and discuss how you will address the elk problem from your group’s particular point of view.</p> <p>As a group prepare an oral presentation. Turn in a copy of your script with all participants’ names included.</p> <p>Include why the elk are important to your group and how your ideas will help both your group and benefit the elk as well.</p> <p>What does your group feel “the right thing to do might be”? Group grade: 0-100 (Remember each member shares the same grade in number 4.)</p>

It would be a good idea to discuss the responsibilities each member has toward a group activity, before assigning this task in which the students all share the same grade!

If your students enjoy role playing, you might want to include points for costumes and props, and make Part B a separate longer term assignment.

Sample Lesson Two

Heading

Evolution, “Change over Time”

This lesson was inspired by Gardner’s recommendation that everyone needs to learn about evolution, as mentioned earlier. This lesson could be presented during a discussion about adaptations, and change over time of different organisms, and/or how scientists have described changes in organisms through natural selection. In the chapter “Evolution as a Contemporary Process” the authors discuss microorganisms which cause diseases that have “demonstrated greatly increased resistance to antibiotics and other drugs used to treat them in the past” (Kennedy, et al. 17). The teacher could lead the students in a discussion of how in fact we have a tail bone but no tail? The point being to lead up to the hypothesis, that if we continue to pollute our Earth to the extent that breathing becomes difficult, then how might our bodies adapt to the air quality or if global warming continues, then how might our bodies adapt to the increase in temperature? Brainstorm for possible consequences that might take place and then have the students illustrate as well as explain some adaptations that might take place a million years from now.

I adapted this sample lesson on evolution, from Bob Barlow’s “Book of Brain Busters,” *The Next Million*, Number 35.

Grading Rubric: Lesson Two: Change over Time

If we continue to pollute our Earth to the extent that breathing becomes difficult, and if global warming continues, how might our bodies adapt to the polluted air and to the increase in temperature one million years from now?

Your answers should be neatly presented in complete and meaningful sentences with correct spelling and punctuation.

1. _____ Write a composition (3-5 paragraphs) about your future person that describes the changes that have taken place over time, along with an explanation of why the changes occurred. (0-50 points)

Your illustration should be neat and reflect the changes presented in your essay.

2. _____ Create an image of your future person, which illustrates the changes you have described in your composition. (0-50 points)

Sample Lesson Three

Heading

Interpersonal Behavior: “Moral Decisions”

Using Gardner’s example of learning about the Holocaust: because “every human being needs to understand what it is that human beings are capable of doing, sometimes in secret, sometimes with pride” (*Disciplined Mind* 17).

Materials

Books such as: *Number the Stars* (Lowry), *The Diary of Anne Frank* (Frank), or *Hana’s Suitcase* (Levine).

These books about the Holocaust can be used in Literature Circles or read by the teacher. I prefer *Hana’s Suitcase* because it is a true story about how a teacher in Japan got her students involved

in an actual research project to discover the history behind a suitcase that was donated to their Holocaust museum. Aside from the painfully tragic story of a family torn apart and almost completely destroyed by Hitler's determination to eliminate Jews, it is also the story of how the resolve of a few young people in Japan to learn more about Hana and her suitcase led to them being able to locate and eventually meet with Hana's brother who now lives in the United States.

I would use one of these books to generate a discussion about the Holocaust, and the rights and responsibilities as well as moral commitments needed to prevent similar events. Older children could research present day ethnic cleansing, such as what took place in Yugoslavia, Rwanda, and currently in Darfur, Sudan, or the history of Apartheid in South Africa, as well as slave labor presently taking place in other parts of the world.

Grading Rubric
Sample Lesson Three: Moral Decisions

Write a review of the book you chose to read. Include the following information:

- _____ How would you describe a moral decision? (0-10 points)
- _____ Why do you think someone should read this book? (0-15 points)
- _____ What did you learn about the Holocaust that you did not know before? (0-20 points)
- _____ Pick out two characters and tell what they might have done differently to change the outcome. 0-30 points
- _____ Why do you think some people act so badly toward others? (0-25)

CONCLUSION

I believe that any lessons based on issues relevant to the students, such as cheating, plagiarism in the classroom, bullying, or topics brought up for discussion by the students will be the most valuable. I will encourage my students to submit topics for discussion and keep a file of their ideas for future classes.

ANNOTATED BIBLIOGRAPHY

Works Cited

- Barlow, Bob. *Bob Barlow's Book of Brain Boosters!* New York: Scholastic, 1997.
This teacher guide includes one hundred and twenty-five writing prompts designed to develop creative and critical thinking skills. I adapted #35, "The Next Million," for my sample lesson on evolution.
- Blosser, Patricia E. *How to ... Ask the right Questions.* Arlington, VA: National Science Teachers Association, 2000.
This booklet is an invaluable resource for framing questions in the classroom. The author organizes questions teachers ask into 4 major types: Managerial, Rhetorical, Closed, and Open, and explains each, as well as other systems of classifying questions. The value of wait time, silence, and additional factors related to questioning are discussed as well. There is a lot of excellent information packed into this small booklet!
- Bryson, Bill. *A Short History of Nearly Everything.* New York, NY: Broadway Books, 2003.
This delightful book is a history of major scientific endeavors from the 1600's to present day discussions of supernovae, what caused craters on the moon, relativity, the age of the Earth, cell structure, quarks, DNA, the origin of the species, the Big Bang, carbon-14 dating, etc., that are matched with the feats and foibles of the scientists we associate with these theories or accomplishments, and many who were otherwise ignored. It is written in understandable terms with the humorous touch one expects from Mr. Bryson.
- Darwin, Charles. *The Voyage of the Beagle.* NY: P. F. Collier & Son, 1969.
Darwin's personal account of his five-year experiences aboard the ship, Beagle, departing Dec 27, 1831 returning Oct 2nd 1836. This is an interesting and absorbing account of his adventures, and additionally, an intriguing insight into the Eurocentric mind set of a 19th century gentleman.

Donate. Life Gift Organ Donation Center. Houston, TX: 713 523-4438.

A video made for school age students to encourage organ donation in the minority populations. I have used it in a unit on recycling.

Frank, Anne. Otto Frank and Miriam Pressler, eds. *The Diary of Anne Frank*. (The Definitive Edition) Trans. Susan Massotty. NY: Bantam, 1997.

First published in 1947, this edition includes diary entries that were omitted in the original edition and results in about 30 percent more material. The diary highlights the fact that Anne was a normal young girl who was forced to hide during the Nazi occupation of Holland. Non-fiction.

Gardner, Howard. *Multiple Intelligences: The Theory in Practice*. New York: Basic Books, 1993.

In this book Gardner describes the educational applications of his Multiple Intelligences theory first proposed, about ten years ago, in his book *Frames of Mind*. He basically suggests that education reform must address the needs of students who have different forms of intelligence, based on the ability to solve problems or to produce products valued in one or more cultural or community settings (7). He identifies seven intelligences: Musical, Bodily-Kinesthetic, Logical-Mathematical, Linguistic, Spatial, Interpersonal, and Intrapersonal.

---. *The Disciplined Mind: Beyond Facts and Standardized Tests, the K-12 Education That Every Child Deserves*. NY: Penguin, 2000.

Based on over thirty years of research in the cognitive and biological sciences and over fifteen years of involvement in pre-collegiate education, Gardner proposes "An Education for all Human Beings" (15) that is based on the realms of truth, beauty, and morality. These themes are easily incorporated into lessons based on the seminar, Philosophy, Ethics and Self.

Hawking, Stephen W. *A Brief History of Time: from the Big Bang to Black Holes*. NY: Bantam, 1988.

A walk through the history of astrophysical thinking about time and the universe, from Aristotle, Galileo, Newton and Einstein to the current thought about a single quantum theory of gravity. Hawking presents his thoughts in a language non-mathematicians are able to understand.

Karp, Walter. *Charles Darwin and the Origin of Species*. NY: Harper & Row, 1964.*

One of many reference titles under the heading of Horizon Caravel Books suitable for Middle School libraries. Of special interest are the many sketches, political cartoons, portraits, photographs, and illustrations, probably included to make the book enjoyable for a younger reader. The fact that they span several hundred years makes them enjoyable for any audience. It is also interesting to read how "Darwinism" is presented in the 1960's, as well as to learn how it was accepted in 1859.

Kennedy, Donald, Chairman, et al. *Teaching About Evolution and the Nature of Science*. Washington, DC: National Academy Press, 1998.

This book, written for teachers, discusses the need to teach evolution in the schools. It contains examples of why this is important, and states that "the Supreme Court has ruled: that 'creation science' is a religious idea and that its teachings cannot be mandated in the public schools" (viii). It includes student worksheets and a chapter for teachers that includes guidelines for analyzing instructional materials.

Levine, Karen. *Hana's Suitcase*. New York: Scholastic, 2006.

The true story of how the Holocaust affected a Czechoslovakian family in the 1930's and 40's, and how young Japanese students discovered the story behind the suitcase donated to their Holocaust Museum. Non-fiction.

Lowry, Lois. *Number the Stars*. New York: Random House, 1990.

A Fictitious account of the German occupation of Denmark during the Holocaust, based on the war time experiences of Lowry's friend, Annelise Platt. Much of the background stories are actual events which occurred in Denmark during the Occupation.

Matthews, B. Gareth. *Philosophy for Kids*. 23 March 2006. <<http://philosophyforkids.org>>. *Philosophy for Kids* is a website dedicated to "doing philosophy with children." Gareth B. Matthews is a Professor of Philosophy, at University of Massachusetts, Amherst, MA. He provides an overview of his work and background on this web site that includes story resources and ideas for working with children as well as links to additional resources. He welcomes comments and requests; his email address is matthews@philos.umass.edu.

McNeil, Donald G. Jr. "Better Bananas, Nicer Mosquitoes." 6 December 2005. *New York Times*. 20 March 2006. <<http://www.nytimes.com>>.

A news article detailing how scientists are attempting to solve third world problems through bioengineering food products, and delivering heat-proof vaccines.

National Research Council of the National Academies. *Science, Medicine, and Animals*. Washington, DC: National Academies Press, 2005.

As a member of NSTA, this book and a teacher's guide about how animals are used in medical research were sent

to me. The contents include chapters on subjects, such as “why use animals, a theory of germs, vaccines, and the concept of basic research.” This is a great source when discussing the issue of animal testing.

Robbins, Jim. “Parks Struggle to Keep Wildlife Healthy and Other Interests Happy.” New York: *The New York Times, Science Times*. March 21, 2006.

This article highlights the problems associated with feeding elk in the National Parks. I used this article for one of my sample lessons, “A Paradox.”

Rubistar, <<http://rubistar4teachers.org>>. (6/19/2006)

A government funded web site for teachers which generates “customizable rubrics.” Teachers register and choose one of ten basic headings, such as, *Oral Projects, Science, Research and Writing, Math, Art, Music*, and create a rubric to suit their own need. Easy to use, and they can be stored on line, or downloaded to a disc or desktop folder. This is the easiest and most adaptable one I have found so far.

Schwartz, Linda. *What Do You Think?* Huntington Beach, CA: Creative Teaching Press, 1993.

I borrowed this book from our school counselor. It deals with typical problems found in a school setting. Issues that include rights and responsibilities are presented in short vignettes, or as questions. The format is quick to access, and the topics cover a myriad of topics.

A Short Course on Biotechnology. Council for Biotechnology and Syngenta Seeds, Inc. 1-800-478-5428.

The video describes how biotechnology has improved agriculture products, both in the plant and animal worlds.

Van Matre, Steve, and Bill Weiler, eds. *The Earth Speaks*. Cedar Cove, Greenville, WV: Institute for Earth Education, 1983.

---. *Earth Education Sourcebook*. Greenville, WV: Institute for Earth Education, 2000.

Web: www.eartheducation.org for further information, about programs and publications.

Supplemental Sources

Elliot, Sally. *Group Activities for Counselors*. Torrance, CA: Innerchoice Publishing, 1994.

A book designed for school counselors that gives ideas about how to set up and conduct group sessions. I found many of the discussion questions and formats helpful in designing this philosophy unit.

Friedman, Thomas L. *The World is Flat: A Brief history of the Twenty-first Century*. NY: Farrar, Straus and Giroux, 2005.

Friedman explains how technology and immediate access to information has made the world “flatter” or smaller. The author discusses the rapid pace at which globalization is taking place. It also conveys the message that in today’s world one person can make a difference, be noticed or have more impact in a much shorter span of time, than ever before.

Hampden-Turner, Charles. *Maps of the Mind*. NY: Collier, 1982.

This book is described as “the first comprehensive attempt to collect, describe, and draw in map form, the most important concepts of the human mind, put forth by the world’s greatest writers, painters, philosophers, and psychologists” (back cover). I found it to be a handy and easily accessible resource of such authors and their concepts.

Hylander, Clarence J. *American Scientists: Pioneer Teachers and Specialists*. Abridged Edition. NY: Macmillan, 1963.*

The history of American science is described as the combined biographies of American scientists, and encourages the reader to regard scientists, not as men in lab coats using precision instruments, but as great thinkers, who have used their intellect to try to “answer fundamental questions of How and What and Why” (viii). This collection of biographies contains the first twelve chapters of the 1935 edition, and includes men such as Franklin, Stillman, Agassiz, Audubon and ends with David Starr Jordan.

Lantz, Hays B. *Rubrics, for Assessing Student Achievement in Science in Grades K-12*. Thousand Oaks, CA: Corwin Press, 2004.

The title says it all. This handy book is a comprehensive guide for creating effective performance, analytical, task-specific, or holistic assessments, as well as how to design rubrics for projects as diverse as scientific drawings or PowerPoint presentations within a science context. This is an excellent resource, especially if you are uncomfortable with using the internet.

Lembke, Janet. *Despicable Species*. New York, N.Y: Lyons Press, 1999.

A series of fourteen enlightening essays, detailing the life cycles and habits of creatures considered by many to be most despicable, and of them all, man may be the most repulsive. I found it to be a fascinating record of creatures such as fruit flies and grasses which produce “sandburs.” Good source of possible discussion topics.

Patent, Dorothy Hishaw. *Evolution Goes On Every Day*. NY: Holiday House, 1977.*

This book, written for middle school libraries, discusses evolution as change which is also taking place today, and addresses such issues as cloning, plant breeding, genetic engineering and current changes in plants and animals as they are evolving into unpredictable future forms.

Rhodes, Frank H. T. *Evolution*. NY: Golden Press, 1974.*

This middle school library guide book presents an historical view of the present (1974) theory of evolution. It describes the account of man's search for the answers to how life arose and how man developed, and man's relationship to the world in which we live.

Schmidt, Fran and Alice Friedman. *Fighting Fair: Dr. Martin Luther King, Jr. For Kids*. Miami Beach, FL: Grace Contrino Abrams Peace Education Foundation, 1990.

This book was borrowed from the school counselor. It is used in conflict resolution sessions. The format includes worksheets that require students to respond by identifying fair or unfair situations, which would then be open for discussion. It also includes two or three sentence situations which can be read and discussed orally.

*The asterisks indicate books our librarian has withdrawn from our middle school library due more to age rather than controversial content. I particularly enjoy these books as it gives me insight into what educators thought suitable for students forty years ago, and to be able to compare them with current thought on these subjects.

Websites

There are several web sites dedicated to teaching philosophy to children. They are available through a web search using a search engines such as Google. I found the following two sites to be most helpful.

Pritchard, Michael. "Philosophy for Children." *The Stanford Encyclopedia of Philosophy*. Summer 2002 Edition. Edward N. Zalta (ed.)

URL follows <<http://plato.stanford.edu/entries/children/>>. This web site answers questions such as "Are children capable of philosophical thinking?" and includes other related internet resources, periodicals and a bibliography. Mr. Pritchard gives his email address as Pritchard@wmich.edu (Thu Mar 23, 2006).

National Association for Teachers of Science (NSTA).

Membership benefits include subscriptions to one or more science education journals, a newspaper, NSTA Reports, and savings on educational publications and programs as well as science links and an online journal archive. <<http://www.nsta.org>>.

United States Department of Agriculture, Agricultural Research Service ARS News Service <NewsService@ars.usda.gov/is/pr/subscribe.html>.

This is a weekly e-mail source of web links to stories issued each workday by the USDA-ARS. This newsletter enabled me to quickly review current research in the Agriculture. For example the Feb 6-10 issue featured top researchers of 2005. It will continue to be a source of new material for this unit.