



“Why Didn’t Anyone Tell Me This Before?”
Language Science in K-12 Education

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Language touches the life of every human being on the planet, in one way or another. It's something every group shares: we all have a language, a culture, and a history. It's innate and natural and beautiful; used well, it can bring people to tears or to a revelation or together. People use language to communicate their ideas and thoughts—in many ways, to communicate themselves—to other people. It's what makes no man an island, it's how to fool some of the people some of the time; without it, FDR would just have been carrying a big stick. 

Every child in the United States is given a bit of education in language. They learn how to read and write English, are made to read famous works by famous people,  sometimes they're even taught what a noun and a verb is—if they're lucky. Mostly, Language Arts classes focus, when their students are very young, on how to read and write, and, when the students are older, on works they should read. All of this is important for kids to learn, no question there—they'll need to be able to write both in college and in jobs, and the literature taught in schools teaches kids who we are and who we've been, and shows them how other people think.

But why aren't kids being taught how language works? Why don't they learn, instead of the catechism that passes for grammar recently, how language actually fits together? Why aren't they taught how language develops, how it's used? Having only Language Arts classes is like having only Gym and Music classes, with no Physics to teach us how it all works.

I propose that Language Science should be added to curricula, to help give children a deeper understanding of what language is and how it's used, all over the world. The curriculum could begin in first grade, along with Language Arts, and continue until

the child graduates from high school, becoming more elective as the child ages. In short, it would be a core curriculum class, vital as Science and Math and its partner and cohort, Language Arts. 

The first class, in first grade, would be a basic introductory course called Languages of the World, which touches on ghtly on  some topics within Language Science, without concentrating too heavily on any one. In this class, first graders would learn a little about a few basic things. Language families (or trees) would be introduced, and students would learn that English is a Germanic language and is a sister to German but only a cousin to Spanish. They could also study accents and dialects around the United States and other English-speaking countries such as Britain and Australia. The film “American Tongues” would be very useful for this.

Kids could do a variety of activities for this class, like making a map and coloring in all the countries where a specific language like Spanish, Mandarin Chinese, French, or Urdu is spoken. They could listen to a tape of dialect speakers, and try to guess which dialect they each speak. Classes could make “language family trees” to post on the board. Each week could be a different language’s “feature week,” and the children could learn to say “hello” and “my name is ____” in that week’s language. Learning about the world’s languages is a simple and fairly low-budget way to introduce children to different cultures without much shock (as well as a way to get them interested in languages while they are young and impressionable).

By second grade, kids are old enough to pay attention and understand more specific topics. Phonology, the study of speech sounds, would be ideal for seven- and eight-year-olds. This class would begin with an overview on how the lungs, throat, and


parts of the mouth work, as well as what they're called. Then, the children could be taught the sounds of English, as well as the International Phonetic Alphabet (IPA) symbols for them. Once English has been covered, the class can move on to sounds not found in English and their IPA symbols. Imagine how much easier teachers' lives would be if kids had one class a day in which they were *expected* to sit around and make noises and learn codes.


Homework would include things like interviewing parents and writing down how they pronounce certain key words, or writing an IPA guide for how to say things in certain accents. This class would culminate in each student being able to decipher things written in IPA, translating them into speech, as well as transcribing speech and words from languages other than English into IPA. This will help students if they choose to learn a foreign language, because they will have all the world's language sounds at their disposal.

Third grade brings an increased capacity for math and computer science, which in turn supports the teaching of syntax to this grade. Syntax, the study of the rules which govern language (or "real grammar," as some dub it), would be an excellent scientific study for eight- to nine-year olds. Kids will learn basic sentence components such as nouns, verbs, and adjectives—as well as special cases like "Halloween" in the phrase 'Halloween party.' The question of "how do you tell word types apart?" will be addressed, with the hope that, should the students ever encounter a traditional grammar class, they will be able to hold their own.

Another topic of this grade's class would be how these word types fit together in sentences. Questions like, "What sort of words can begin a sentence and what types of

sentences do they begin?” would be tackled by the class as a whole on a monthly basis. Homework would consist of finding real-life examples of sentences that fit words together in the ways the class has discussed; students would be asked to listen in on real conversations around them. This heightens observational skill and also prepares the students for their fourth-grade Language Science unit.

 Fourth grade—nine- to ten-year-old children—is the perfect time for big learning. The kids are old enough to tackle a larger project, but young enough to still think learning and teachers are cool. It is now we give them the job of studying a language in detail. After a short review of IPA and sounds (second grade) and syntax rules (third grade), the class would begin in-depth study of a mildly obscure, relatively easy (for English speakers) language. As an example, let’s take Thai. By listening to tapes of Thai and a native Thai speaker (who would ideally visit the classroom two or three days a week), students would try to write a plan for how to speak Thai.

This would begin by writing IPA transcriptions for Thai words, and trying to narrow down which sounds Thai uses and which sounds it doesn’t use. Then, by asking questions of the native speaker and using the tapes, the students would write rules for things like pluralization, verb tense, article use (or lack thereof), and question formation. A side effect of this (a bonus, if you will) is that the children, who are young enough to still have language learning come easily to them, will, over the course of the year, pick up the  language.

After an exciting year in fourth grade, fifth grade must be exciting as well. This year, instead of examining a foreign language in depth, students will examine the syntax of their own language in detail. This will use some of the techniques from third grade,

but will go much more in depth into the syntactical analysis of the language. Students will learn components of deep structure and theories of movement—things like equi-NP deletion. They will be asked to keep “spy journals” where they write down real things people say, which the class can analyze.

Students will learn about oddities of English like phrasal verbs and negative polarity items, and by using native-speaker intuitions, will be able to tell the difference between a violation of these ideas which results in an ungrammatical sentence, and one that results in a humorous sentence. They will also learn how sentences which people utter that don't immediately seem to make sense are still interpretable according to the rules in the human mind.

Sixth grade marks the beginning of middle school for most students, and it is with their added maturity in mind we start the study of semantics this year. Teaching Grice's conversational maxims would start the year, and for homework, students would be asked to find real-life examples of maxim violations. Conversational implicature would also be discussed, and the differences between implicature and meaning outlined.

They would then learn basic logic. Beginning with modal logic and working outward toward predicate logic, students would learn the connections and differences between truth-functional logic and real life. They would find examples from books, TV, and real life wherein a sentence which should have one truth-function has the opposite, and the class will discuss how real life and real speech diverges from this idealized form.

Seventh grade will look at different dialects of English and the social groups that speak them. Reasons for social or ethnic groups to adopt certain dialects, as well as the social and economic advantages of both using a dialect and using “standard” English will

be examined. Anthropology will come into play as students learn about people who speak more than one dialect and code-switch, and scenarios in which they might choose to do this.

This class will also focus on language gaps in different social groups. As an example, the problem of AAVE speakers scoring badly on standardized tests because of dialect issues will be addressed and discussed. This class will expand social boundaries and intellectual discussion comfort zones, preparing students for the larger world of high school (which is fast approaching) and, more distantly, college.

In eighth grade, discourse analysis will again be the focus. Grice's maxims will be briefly revisited as the gap between following the maxims and effectively communicating with another human being is examined. Of particular interest will be two texts: Morris Desmond's *Manwatching: A Field Guide to Human Behavior* and Deborah Tannen's *That's Not What I Meant!* These texts (as well as excerpts from *You Just Don't Understand: Women and Men in Conversation*) will illustrate how expectations and mental processes of the two speakers can add as much to the conversation as the words used.

Homework will once again involve gathering real-life evidence of misunderstandings based on people's different interpretations of the world and the words they use to describe it. Later in the semester, students will write a short research paper based on some experiment or project, such as a female student communicating as a male for a day, or a student trying his hand at mediation and writing about language differences between the people in the conflict.

Ninth grade brings high school, and with it, an influx of standardized tests. To help with these, we plan to teach fourteen- and fifteen-year-olds etymology, or the study of word origins. In any of several “Language Origin” units, the students would learn a slew of example words from the origin language, as well as some unusual words. For instance, for Latin, they might learn *altar*, *circus*, *include*, and *nervous*, but they would also learn *ameliorate* and *pugnacious*. Homework will include memorization of these words and one book read every two weeks (a short form which proves students have read the book must be filled out) to help improve vocabulary.

Other origins of language will be examined as well, such as proper names (*Band-Aid*), blends (*smog*), and imagination (*chortle*). Next, ways to make new words from old words will be discussed. Affixation (changing the meaning of a noun or adjective), conversion (turning one part of speech into another part), and compounding (adding two words together) will be important parts of this unit.

In tenth grade, students will turn to study of how English is changing. A grounding in Middle English will begin the year, with students writing a paper or doing a project on the differences between Middle and Modern English. The course will follow the progression of English toward the modern incarnation of Standard American English, going through all the stages in between. Historical influences will be investigated, and so a bit of history will necessarily work itself into the course

The last part of the course will look at how the language is changing now. Specific attention will be paid to jargon, especially technological, slang, and redefinitions. TV shows and movies will be examined for illustrations of changing

American speech. A paper or project on one aspect of American slang will help wrap up the course.

Toward the end of high school, often a student is allowed more freedom of choice in his courses. It is with the thought that a student may or may not wish to continue in mind that I suggest, instead of a set path for 11th and 12th grades, a variety of options. The following classes would help students prepare for college and/or life in various ways, and might be offered for a semester or a full year, at the school board's discretion.

Language Construction—a course in which students design their own language based on examples both constructed, like Esperanto, and natural. Students will make all the decisions themselves, from choosing a language family, to inventing their own nouns, verbs, and adjectives; to designing a grammar system. Study of natural languages will of course be necessary to help the created languages stay in line with natural laws of language.

Language and Philosophy—a course which would satisfy a student with questions remaining after semantics class was finished. What do sentences like “If he passed that exam, then I’m a monkey’s uncle” really mean? A deeper look into modal logic and the ways that it fails language, with suggestions as to how to fix it.

English as a Second Language—this course examines the difficulties one would encounter learning English as a second language. An arrangement would be set up with a local ESL community so that the students could have ESL partners, whom they could coach in learning English. The students would keep a journal as the semester/year continues, chronicling both their progress as a teacher and their partner's progress with English.

Chomsky and Co.—this course details linguistic theories and hypotheses in all categories. From Chomsky’s first syntactic theory, through government and binding up to the theory of merge, this class will prepare future linguistics majors for their introductory courses. The Sapir-Whorf Hypothesis and Pinker’s thoughts on language acquisition (and other non-syntactic theories) will also be studied.

A basic overview of the typical student’s Language Science education would look like the following:

- First grade – Languages of the World
- Second grade – Phonology and Phonetics
- Third grade – Basic Syntax
- Fourth grade – Systematic Study of Thai (or another language)
- Fifth grade – Advanced Syntax – English Only
- Sixth grade – Semantics and Logic
- Seventh grade – Dialects and Society
- Eighth grade – Social Discourse Analysis
- Ninth grade – Etymology
- Tenth grade – Changing English
- Eleventh and Twelfth grades – a selection from among the following:
 - Language Construction
 - Language and Philosophy
 - English as a Second Language
 - Linguistic Theories (*Chomsky and Co.*)

This would provide a good solid grounding in language as a science. To prove this is a sincere venture, I would like to provide a few more detailed descriptions of classes and the work they would entail.¹ I will also supply a sample day’s lesson plan from one unit of one year, specifically, from the second grade phonology course, the unit on vowels of English.

¹ While my plans for etymology are (to the best of my knowledge) entirely original, my phonology/phonetics plan will borrow heavily from my own Linguistics 313 course, taught by Pam Beddor at the University of Michigan. I believe this course, with a few modifications and a general slowing-down for the age difference, would work wonderfully with second graders.

Ninth grade is one of the years I wish to go through in more detail. The year would begin by detailing words which come to English from other languages. Each unit would be a different language, and students would learn vocabulary from that language, both simple and more difficult words. Units would include Asian Languages (Japanese, Korean, Chinese, Hindi, Thai, and others), Native American Languages, Germanic Languages (primarily German and Yiddish), Hispanic Languages (Spanish from both Spain and Mexico, as well as Portuguese, and others), Slavic Languages (Russian, Hungarian, Czech, Serbo-Croatian, and others), Latin, Arabic Languages (Arabic, Turkish, and Urdu), Greek, French, and a final unit on “Other Influences” which would include African languages, dialects of English such as British and Australian English, and Scandinavian languages.

Next would be a unit on Proper Names, showcasing eponyms ranging from *leopard* to *Herculean* to *nicotine*. Blends would come next, with words as old and respected as *brunch* and as new and odd as *guesstimate*, as well as odd semi-compounds like *ageism*, *user-friendly*, and *height-challenged*. The next unit will be words from the human imagination, words like *quiz*, *blurb*, and the ever-popular *chortle*.

Affixation would follow (and would be quite a hefty unit). English has a rich affixation system. First the class would learn about prefixes. Prefixes would be split into lists of type, such as prefixes that negate (a-, un-, dis-, etc)². These lists would be discussed in detail, including what words they can be attached to and what languages they originate from. Then the class would focus on suffixes (such as *-tion*, *-ish*, and *-ness*) and their ability to change the meaning and, sometimes, the grammatical category

² For such lists, please see p. 128 of *The Cambridge Encyclopedia of the English Language* by David Crystal.

of the word involved. Conversion, a system which has achieved faddish popularity recently, could be studied not only by in-class examples, but by having students bring in examples from media and real conversations. Compounding will be the last unit before the exam review that will end the class. Compounding will include words like *basketball* and *earthquake*, and also will look into common compounding elements like *techno-* and *-aholic*.³

In addition to finishing one book per two weeks of a length appropriate for the skill level of the student, each student will be expected to retain meaning and facts about words that are taught in class. Each unit will end with a test, which along with definitions, will ask the student to produce three words of a given type (Portuguese-borrowed words, say, or affixed words) as well as a short essay on how these type of words (created, French-borrowed, etc.) came to be an accepted part of English. The final exam will be an amalgamation of the unit tests, with a longer essay about what the student thinks was the most influential of the unit subjects, or word origins, that was studied.

A sample unit lesson plan for etymology would look like this:

Etymology: Latin Unit




I. History

- A. The Romans conquer Britain
- B. Latin is the language of the church
- C. Latin is the language of the educated. (and Greek)
- D. New World – Latin remains basis for “educated” status

II. Words from Latin

A. Vocabulary:

³ My etymology curriculum owes a lot to the text in *The Cambridge Thesaurus of the English Language*, David Crystal. I would recommend the chapters on etymology be used as a coursepack for the class.

1. Common terms: altar, circus, include, interim, monk, etc.
 - a. give Latin dictionaries
 - b. one day group project; whichever group finds the most Latin-based English words wins a prize. Must be common words – no “ameliorate” 
2. Latin industries 
 - a. Catholic Church
 - b. Medical profession – examples: body parts, illnesses
 - c. Lawyers – examples: habeas corpus, quid pro quo 
3. SAT words
 - a. base Latin words, pugna “fight”, pulchra “beautiful”, male “bad”
 - b. created ‘Latinate’ terms: pugnacious, pulchritudinous, malevolent.
 - c. make your own – extra credit.


III. Review, Test for Unit

This structure would be very similar to that of other units in the class. The “Words from” section would change a bit, as not many other language groups have had the vastness of impact on English that Latin has had. The base structure, however, would remain the same, with the same emphasis on projects and creativity—extra thought on the topic—throughout the course.

Second grade would tackle the subject of phonology. The first class would begin with a question put to the students: “How many languages do you think there are?” The teacher would then tell the students that there are between 6,000 and 8,000 different languages in the world. This would be followed by brainstorming different sounds, and then the announcement that there are 800 different speech sounds in languages in the world. Some of the odder sounds to English speakers will be introduced the first day—clicks, uvulars, and ejectives—to get the kids interested in “funny noises class.”



The first unit will be about the vocal tract, with the students learning to identify different parts of the vocal tract (alveolar ridge, uvula, hard and soft palate). Labeled diagrams and a linguist's model of the human head will be used to illustrate these. The vocal cords and the difference between voiced and voiceless will be focused on specifically in their own lesson as a basis for the rest of the year.

Students will be given a blank simplified IPA chart (this one specifically shaded to reflect only the sounds in English) which they will fill out with the new symbols and sounds learned at the end of each lesson. The beginning of each lesson will be a review of the sounds which have been already learned. Every sound will be reviewed, until students finish the English sounds part of the course. Then, to cut down on time, English sounds will only be reviewed once a week. 

The first unit this chart will be used in, consonants of English, will begin the simultaneous teaching of speech sounds and the IPA. Children will learn the place and manner of articulation, as well as voicing characteristics, of each English consonant sound. Things such as centrality and nasality will also be touched on briefly. The next unit is vowels of English. Differences like roundness, backness, height and diphthongs will be discussed in great detail.

After English speech sounds are taken care of, the class will move on to Non-English sounds. This unit will begin by featuring the two other types of voicing, Breathy-voiced and Creaky-voiced. After this, an average of two new sounds per day will be a secondary goal, with the primary goal being retention of those sounds and symbols already learned. Consonants will be taught first, then vowels.

A sample day's lesson from the phonetics class would look something like this:

Today's lesson: Fricatives in English

Review of learned sounds and symbols (nasals and plosives) – 20 mins

Introduction of new sounds – 10 mins

- idea of a fricative – difference from a plosive (stop) *friction*

Labio-dental fricatives [f], [v] – 10 mins

- tongue-teeth
- moving air, incomplete stop
- voiceless/voiced

Inter-dental fricatives [θ], [ð]– 10 mins

- tongue *in* teeth
- moving air, incomplete stop
- voiceless/voiced

In-class review of new sounds, writing new sounds on IPA chart – 10 mins

- give homework: simple worksheet with words with the four new sounds on them, pick which symbol illustrates the sound in the word. (words would include *of, the, thin, fancy*)

This lesson reflects the structure of many of the lessons of this class. Children would, slowly but surely, develop a knowledge of IPA and sounds of the world's languages.

I am a linguistics major, and so naturally, to me, the study of language is the most fascinating of possible studies. It is hard for me to believe that anyone could *not* find these things interesting. I am aware that such people exist; however, even those who do not major in linguistics often find themselves asking, upon taking a linguistics course or learning some basic Language Science, “Why didn't anyone tell me this before?” I seek to answer their question by making it obsolete.

