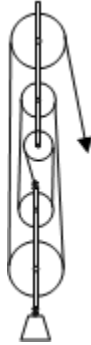


Curriculum

Overview of ALL's Curriculum Articulated through Course Offering:

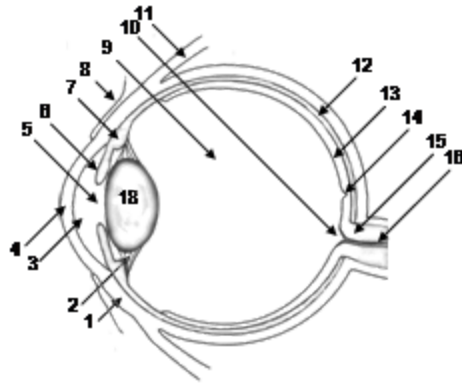
ALL utilizes proprietary instructional materials that include summative evaluations (provide measures of growth and proficiency in addition to providing diagnostic data); as well as formative teaching tools (provide students with



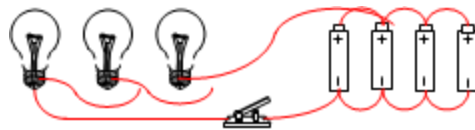
feedback that is used to improve comprehension, and provide instructors with feedback that is used to adjust and refine teaching practices). The process of completing the required assignments and exams, generates data that is evaluated and used to assess student knowledge and skill, and guide further instruction. Specific learning materials include “multi-year content streams” and single year “course” content streams. Additionally, proprietary instructional materials are provided to assist instructors and students with difficult concept and skill acquisition including: Written and graphic (display based) “Subject Content Support” resources that are keyed to specific “Challenges” and “Experts;” along with concrete models and specialized equipment (laboratory equipment, artifacts, kits) that augment lectures, demonstrations, discussions, and experiments. Technology, including internet resources is of significant value and provide for stimulating multi-media presentations. Software applications, and web based instructional support tools are made available to both students and instructors. Many assignments and activities require internet connectivity, and instructors may access the internet and exhibit the output on large format LCD displays, during lectures or whole-group discussions. Content in many subject areas is also supported with traditional texts and reference resources.

ALL's various multi-year content streams are comprised of instructional instruments graduated by difficulty and numbered in the sequential order each item is expected to be “mastered.” Content streams are comprised of “Expert Trials” (that require mastery understanding of concepts and recall including; declarative knowledge, manipulation of constructs, and consolidation of newly introduced concepts with previously learned concepts)

and “Challenge Trials” (that require the application of concepts, that require procedural knowledge and skills, and that require the transfer and generalizations of knowledge.) Multi-year content streams, cover content-subjects that are expected to be taught over two



or more years; For instance, the ‘Numeric Operations’ series begins with “counting” at an appropriate level for kindergarten, and ends with content that might only be seen, in a traditional educational setting, in a “College Algebra” class. The time required to complete any particular subject content stream is highly variable between students, however, there is a minimum trial-rate-per week requirement within each stream. Experience has demonstrated that over 80% of the students who have attended *ALL* beginning in kindergarten or the first grade, complete the Numeric Operations Series between 5th and 6th grades; some complete the series much earlier. Multi-year content streams include: Reading and Writing Series; Penmanship Series; Orthography Series; Visual Arts Series; Anatomy and Physiology Series; Conceptual Physical Science Series; Earth Science Series; Syntax and Semantics Series; Literature and Rhetoric Series; Numeric Operations Series; Political and Physical Geography Series; and Lexicon Series. In addition, an AP format option is provided for students as early as 6th grade. The advanced placement option includes courses in studio arts, English language and literature, psychology, comparative government, politics, human geography, macroeconomics,



microeconomics, US Government, civics, US history, world history, biology, chemistry, environmental science, electricity and magnetism, mechanics, physics, statistics, computer science, and calculus.

Series Content Stream Courses are expected to extend over multiple years, however students may progress as rapidly as they are able. In rare cases, highly motivated students may complete a series within a year, while other very bright students might require three or more years. Advanced elementary students are allowed to initiate and complete a series prior to entering Secondary School, while others might finish in secondary school. Most

students entering ALL at the secondary level will initiate content series as their core prerequisite courses. Content Series courses provide a solid foundation for more advanced courses and are instrumental in ensuring college and career success.

Short Period Subject Courses are rigorous and can often be completed within a single year, however for some students, time-to-completion and “mastery” knowledge attainment may require more than a single year. Similar to the “Series” materials, single year courses are comprised of “Expert Trials” and “Challenge Trials” and are numbered in the sequence each level should be mastered. Expert Trials are formative “power” evaluations that flow in a continuous feedback loop. They provide fine-grained student learning outcome data as well as data on daily performance that drives the pacing of instruction, student and instructor interventions, and informs in-service teacher and instructor training needs. Trials have a self-leveling design. Expert Trials provide objective measures of mastery knowledge. Challenge Exercises are formative evaluations of the fluid application of knowledge and its generalization.

Expert and Challenge Model Cross-content Characteristics Utilized in Series Stream Courses and Subject Courses:

- Each content-subject series has high content density
- Each content-subject series includes criterion referenced assessments with significant “depth of knowledge” demands.
- Each content-subject series includes reading comprehension questions.
- Each content-subject series includes writing (e.g., essay, short answer) questions.
- Each content-subject series includes nomenclature questions specific to the targeted content domain.
- Each content-subject series includes problem solving questions specific to the targeted content domain

Seminars / Colloquia / Symposia: differ in structure and procedural practices but all have instructional oversight and are supported by mentors. Learning community members for these various small group “alternatives to traditional classrooms” are selected on the basis of: passionate interest in the topic focus, ability to self-monitor, ability to sustain high motivation, academic maturity, integrity, and interpersonal skills. Initiated by student proposal.

Senior Project: Most *Senior Projects* require multiple years to complete. Students should attempt to complete their *Senior Projects* prior to the beginning of their senior year. Although it may be possible to complete a *Senior Project* in less than a year, students should plan on initiating their projects prior to their senior year. Students may work in defined, stable groups where the work load is distributed evenly between group members; or they may work elect to work individually. Students who anticipate that they may want to submit their project for publication, must plan accordingly. It is highly recommended that ALL students begin their senior projects as early as freshman year. Senior Projects should be completed in the first

few months of one's senior year, if not before. Please consult your advisor/sponsor to develop a timeline as soon as possible. Students may elect to submit for consideration multiple projects of varying complexity. The worthiness of a project is not dependent on the time it takes to complete, difficulty, or flamboyance. Passion, creativity, curiosity, risk, and social value are characteristics of worthwhile projects.

R&D-C, Science Laboratory Project: Small groups (2-6) of students are assigned to long-term research-and-development communities (R&D-C). Each R&D-C is allotted a different laboratory project (LP) with defined outcome goals. The function of both the R&D-C and its individual members is to be evaluated (by members of each R&D-C and their supervisor). The quality of their evidenced-based-inquiry process, innovation and creativity, and the efficacy of their group dynamics will be assessed in addition to level of success in meeting the specificity of the assigned goal. Instructor and/or "experts" will provide mentoring and monitoring throughout the process, however the chief responsibility for planning and execution remains with each R&D-C members.

Mathematical Research Project Collaboration: Students work with an ALL's mathematics instructor and a mentor to select, design, execute, and possibly publish a mathematical research project. At the culmination of the project, successful students will publically present their finding. Open only to qualifying students, 11th grade or below.

Brief Descriptions of ALL's Proprietary Curriculum "Series" Courses:

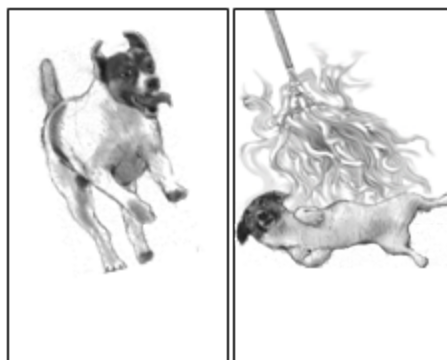
Penmanship/ Letter Recognition/ Letter-Sound Association Series: This series is heavily layered



(previously learned skills are reinforced in the process of acquiring new skills); includes whole class writing activities joined with individualized untimed Expert Trials and Challenge Exercises. This series is introduced in preschool or kindergarten for students who didn't

attend preschool at ALL. The series is generally completed by the middle of second grade if not sooner. Over forty percent of students who begin in kindergarten, will likely finish the ball-and-stick and D'Nealian print portions of this series by the end of first grade and begin D'Nealian. Entering students are assessed for proficiency and placed at the appropriate level.

The Penmanship Series overlaps with the Orthography Series. Whole class and individualized exercises are designed to: improve fine motor skills; develop application knowledge of calligraphic techniques; improve discrimination recognition between similar graphic symbols; automatize students' handwriting (by "chunking" letter strings into phonetic units and encoding high frequency letter combinations into "muscle memory" gestural movements); and develop letter-sound associations as well as letter-symbol associations. Throughout this series, care is taken to introduce constructs in a manner that enhances retention and recall while decreasing interference. It is generally accepted that motor learning is easily automatized yet difficult to extinguish if dysfunctional to a goal (that is, bad habits are hard to break). Exercises in this series target specific skills through a strategy of holding all non-targeted (or as many as possible) variables constant while the factors that are salient to the targeted visual discrimination or motor skills are varied. A simple strategy related to this concept can be easily visualized by studying the organization of letters presented during whole-class symbol discrimination and writing exercises (e.g., oad-oc-ocu-dbpq-gy-uy-oadg-ft-vr-ij-nhk-unmwv-sz VWMNZ-KXY-HFEBA-ITLJ-UCOQG-DPR-ZS 62-5380-17-94). Other targeted procedural skills include alphabetization of words, initial sound recognition. Initial sound recognition is accomplished by requesting students to read and write words that vary across initial sounds while ending sounds are held constant (pattern words) thereby reducing cognitive load and promoting generalization (e.g., at, bat, cat, fat, hat, pat, rat, sat; an, ban, can, Dan, fan, man, pan, ran, tan, van; etc.). Fine motor skill dexterity are targeted, with an emphasis on producing legible and appealing graphic symbols in print using modified ball-and-stick model and in cursive using simplified D'Nealian script as a model. Within the first week of kindergarten most students should be reading (with cadence), writing, and comprehending sentences similar to, "The fat rat sat on the cat in the flat hat."



Orthography/ Reading and Writing Series: This series includes class-wide choral reading of lexically controlled texts aligned with formative Expert Trials and Challenge Exercises designed to expedite the transition from simple letter recognition to fluid reading with comprehension. In this series, Experts and Challenges are independently numbered. Expert Trials and The *Orthography Series* is horizontally aligned with prescribed whole-class reading and writing activities, and the *Penmanship Series*. This *Orthography Series* should be initiated by the beginning of the second quarter of kindergarten, if not sooner for advanced students.

The prescribed group activities, *Reading and Writing Series*, enables students to build large repertoires of sight words and phonetic decoding skills in a relatively short period of time, while at the same time building on previously mastered skills. It Begins with simple English language conventions such as phonetic spelling and pronunciation patterns (e.g., fat-fate, hat-hate, rat-rate, bit-bite, kit-kite, an-and, ban-band, kiss-kill, miss-mill, rat-rot-rut, rate-rote-rite, beak-bleak-streak-creak-wreak-weak); And progresses to develop deeper phonemic awareness (short and long consonant and vowel sounds; consonant blends bl, cl, fl, gl, pl, br, cr, dr, fr, gr, pr, tr, sk, sl, sp, st, sw, spr, str; digraphs ch, sh, th, wh, ng, nk; diphthongs oi, ow, ou, oo as in book, oo as in moo; and control “r”) within the context of words and simple sentences. Expert Trials introduce pattern words by initial sound (e.g., cot dot got hot not / get met jet bet set / bun fun pun run sun / bin din fin kin pin sin tin / Ken men pen ten den hen / bag gag nag rag sag tag), progress through identification and manipulation of phonemes in structured word families (with intent of reducing the deleterious learning effects of high frequency English words exhibiting the highest rate of irregularities). Expert Trials culminate with compound words, simple morphemes, root words, and inflected words.

As students move through higher *Reading and Writing Challenge* levels, words from the Orthography Trials are incorporated into whole-class constructed sentences that are read whole-class choral with various vocal intonations that alter meaning and/or are associated with punctuation (e.g., Challenge Exercises require students to individually compose sentences from a restricted list of pattern words and sight words.) Higher *Reading and Writing Challenge* levels introduce capitalization conventions (beginning sentences, proper names and places) and punctuation conventions (declarative sentences ends with a period, questions with a question mark) are introduced and required for mastery. Yet higher numbered *Reading and Writing Challenge* exercises introduce parts of speech (nouns, verbs, adjectives, pronouns, conjunctions) and more sophisticated sentence structures with antecedents and transitional words.

Numeric Operations Series includes “Expert Trials” and “Challenges” along with prescribed interactive lectures, need-to-know discussions (student driven, inquiry guided lectures), and Want-to-Know discussions (whole group inquiry activities). The Numeric Operations Series is a prerequisite for ALL’s advanced math and science courses. The scope of topics covered include: the six arithmetic operations, abstract concepts intrinsic to the nature of mathematics, mathematical methods of application to “real-world” problems, properties of

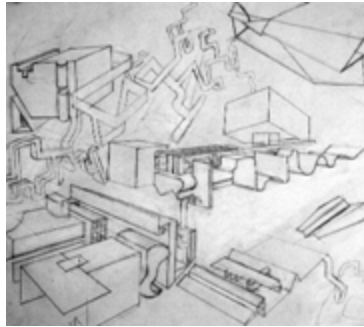
numbers, algebraic notation, function notation, elementary algebra, linear equations with up to three variables, systems of linear equations, polynomials, probability, statistics, geometry, complex numbers, inequalities, graphing. Embedded resources, and reference materials are included. Tutoring is available. TEXTBOOK-NOT REQUIRED.

Lexicon Series: This standalone series involves the study of American-English word forms, specialty-use words, and words representing higher order constructs (vocabulary infrequently encountered in casual conversation) arranged in conceptual families along with the study of orthography. Included are: Latin and Greek morphemes, affixes; prefixes suffixes, infixes, agglutination (of morphemes), root words, collocations (word strings, fixed expressions), compound words, loan words, idiomatic expressions, irregular word forms, acronyms, inflections, word derivatives, phonemes (distinctive unit sounds), confused and frequently misused words, frequently misspelled words, phoneme-grapheme variations, specialized words and language used in various academic, social, historical, and cultural contexts. This series overlaps with subject disciplines across the curriculum. Comprehension is the reason for reading, and vocabulary plays a significant role in comprehension. Additionally: the Lexicon series is revised every few years; adding new lexical “families” and extractions from widely distributed scholarly readings; and revisions guided by item analysis output generated within MARC’s integrated environment. From its beginning, this series advances in increments from constructs with low cognitive demands to its culmination with constructs that require substantial cognitive sophistication.

Syntax and Semantics Series: This series is comprised of Expert Trials and Challenge Exercises organized in a single numbered sequence. With short writing assignment, direct instruction, and rapid formative feedback students acquire facility with standard English conventions including: parts of speech (nouns, pronouns, adjectives, verbs, adverbs, prepositions, conjunctions, and interjections); inflections (plurals, comparatives, etc.); sentence types (declarative, interrogative, exclamatory, imperative); tense (simple present, present progressive, simple past, past progressive, present perfect simple, present perfect progressive, past perfect progressive, future simple, future progressive, conditional simple, conditional progressive); person (first, second, third); case (subjective, objective, possessive) word order (SV, SVO, SOV, VSO, OVS etc.); Clauses and sentence structures (simple, independent clause; compound, multiple independent clauses; complex, independent clause with at least one dependent clause; compound-complex, multiple independent with at least one dependent clause). Additionally, parallel sentence structure, rhetorical devices and figurative language Exercises are included.

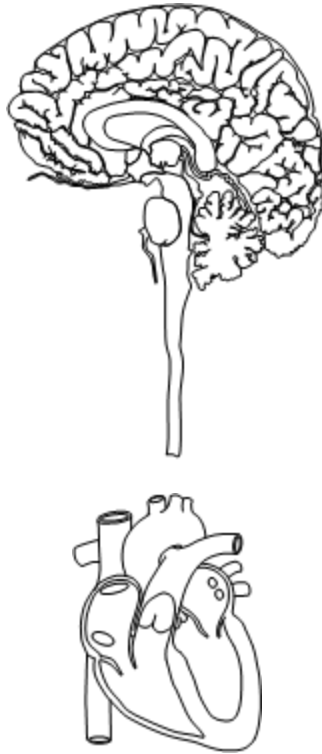


Visual Arts Series: Includes Challenge exercises only and cross



content-subject exercises. Arranged in continuous sequence including a *Two Dimensional Drawing Module*, *Color Studies Module*, and *Three Dimensional Design Module*. The Drawing Module covers linear and curvilinear perspective (one point, two point, four point, spherical, and natural); relative motion and/or vantage of viewer (rotation, inclination, radiation, and all permutations); atmospheric perspective; drawing from nature; and portrait and figure drawing. The Color Studies Module covers the anatomy and physiology of color perception; color physics; and simultaneous contrast studies (in the manner of Joseph Albers). The *Three Dimensional Design Module* includes: scale model design (drafting); scale model materials and techniques; materials and cost estimation, fundraising, construction planning and scheduling; full scale building and finishing techniques. Full scale building to this point have all been group projects.

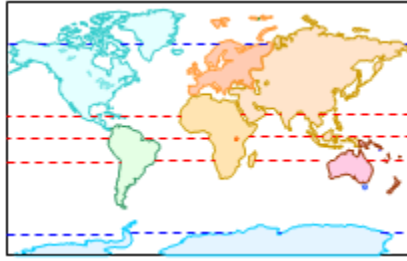
Human Anatomy and Physiology Series: In this series, Experts and Challenges are sequentially



numbered. Experts are exclusively identification and short answer power exams; Challenge Exercises are all comprised of extended essay questions that overlap with writing and composite scoring (punctuation, spelling, grammar, and word usage) is used. The Human Anatomy Series covers various human structures and systems including: skeletal, muscular, integumentary, digestive, dental maturation, renal system, respiratory, cardiovascular, lymphatic, nervous, and endocrine.

Physical Science Series includes more than 300 “Expert Trials” and “Challenges” and is a prerequisite for ALL’s Secondary School science courses. This course is designed to build a strong base for more advanced science courses. Although an understanding of algebraic relationships is necessary, emphasis is placed on conceptual models. Examples of topics covered include: Mechanics (Newton’s Laws of motion, momentum and energy, gravity, fluid mechanics, thermodynamics); Electricity and magnetism (electrodynamics, electromagnetism, circuits); Properties of waves (sound, light); Structure of the Atom (subatomic properties, atomic nucleus); Chemistry (the periodic table, chemical bonds, molecular mixing, reactions, acids, bases, redox reactions); Earth science (rocks and minerals, Earth’s internal properties, hydrology, atmosphere, weather). **TEXTBOOK-REQUIRED:** Students must own their own textbook and read in advance of lectures. It is highly recommended that students retain the text as a future reference.

Physical & Political Geography Series includes more than 290 “Expert Trials” and “Challenges” and is a



prerequisite for many of ALL's Social Science courses such as geopolitics and human geography. Students will study geosystems including the forces and processes in the natural environment including the solar system, atmosphere, hydrosphere, biosphere, and geosphere, and the forces and process that alter the Earth's surface. Additionally students will identify geographic, governmental and political subdivisions of territory on a variety of scales and cartography. Extensive use of on-line resources.

How Courses and Curricular Materials are Continuously Improved and Developed: Each instructional series is reviewed for instructional and evaluative effectiveness and refined yearly. Each item within each series is analyzed, against the appropriate cumulative data stored in MARC's integrated environment, relative to item difficulty, discrimination power, and item characteristic curve. Instructional concept modules (groups of Experts and/or Challenges aligned with a specific concepts within a subject) are evaluated for ceiling and floor effects. Revisions are guided by this output. This process is continuous throughout the year, however revisions are only introduced at the beginning of the next year.