Literacy Case Study
Improving reading literacy for an ESL learner

Michigan State University
TE 846
Shawn Michael Campbell

I. Brief Background and Reason for Project Focus

This project is being taken on to help the student Jerry improve his reading literacy. Jerry is a senior student at an international high school in China. The researcher had previously tutored the student, as well taught the student English in his junior year. The researcher has observed the student on many an occasion struggling with reading literacy. Overall he is an excellent student in all other aspects of English, but seems to have a problem with reading comprehension, as well as reading speed. Swanson, E. and Vaughn, S. recommends for the student to be assessed using readings that are required for the student to read (Samuels, S.J. & Farstrup, A.E. (2011) p. 269), so therefore the student's reading speed and comprehension will be assessed using the TOEFL and the SAT. This student will also be assessed using early academic word reading lists. While words vary as to what is considered an academic word, this is a common target of assessment for ELLs (Morrow, L.M. & Gambrell, Linda. (2011). p. 125).

Academic reading is extremely important for the student, because he is required to take both the TOEFL and the SAT to be admitted into a quality university in America. He scored 92 overall on the TOEFL during his second opportunity taking the exam. While this score is quite good for a student taking the test on his their second opportunity, each section of his score should be looked at individually. He scored a 24 on the listening TOEFL listening section; a 23 on the TOEFL speaking section, a 24 on the TOEFL writing section, and a 21 on the TOEFL reading section. While 21 is a decent score, he told me that he had run out of time on each question of the reading section. He said that every time he takes a TOEFL he feels extremely furstarted. Negative effects of standardized increasing the competition level, can include devaluing G.P.A. and school assessments, and increasing frustration and discouragement (Sloane, F. & Kelly, A.

(2003) p. 12). Therefore it is in the opinion of the researcher that this student should receive proper reading instruction to help him become a better reader.

II. Home and Family

Jerry is an eighteen year-old male, who was born in a medium-sized city in China that is relatively well-to-do. He was brought up in the traditional Chinese education system, with its emphasis on lecture-based courses and results-oriented learning (Eggleston, Oi, Rozelle, Sun & Zhou, 14). Besides these two facts, he was forced to large quantities of grammar and vocabulary-based homework each day, so he was never able to read anything that was not connected to schooling, or that was of an interest to him. While vocabulary instruction is a significant factor for literacy among ELLs (Morrow, L.M. & Gambrell, Linda. (2011). p. 76), there is no context with the Chinese type of vocabulary instruction and ultimately wastes the time of the student. Fortunately for him, he attended a high-quality elementary and middle school before coming to the international school. He has learned English for eight years, and is quite adept at speaking and having a conversation. He is the class president, and has no problem running the meeting using English only.

As a child, his mother would often read to him in Chinese. The involvement of a parent for an ELL, typically has nothing but positive effects on a their education; however the effect is greater for standardized tests such as the TOEFL (Morrow, L.M. & Gambrell, Linda. (2011). p. 437). While his mother does not speak English, she did play English recordings for him when he was seven years old. However at this time in a typical Chinese child's life, they are very busy with learning how to write Chinese characters (Eggleston, Oi, Rozelle, Sun & Zhou, 14). So he

would have been behind other ESL students in other countries, who started the English earlier and had more time to learn.

Jerry's first experience with English reading came when he was ten or eleven years old. He read English passages in his English textbook. He feels that he never had any trouble learning the letters or the words, but still has a hard time deciphering the meaning of sentences. He has read over fifty books in Chinese, while only two in English; *Animal farm* by George Orwell and *The hound of Baskervilles* by Arthur Conan Doyle. Jerry had difficulty reading both of these books because he did not fully understand the vocabulary. However he also read an abridged version with Chinese commentary to help readers along.

Jerry considers himself as an above-average reader in Chinese. It was the hope of the researcher to assess his Chinese reading ability and compare it to his English reading ability. However, Chinese reading assessments do not assess reading speed, only comprehension of the text, as well as contextual meaning. Therefore there is no baseline to accurately judge his results. So for this assessment, the researcher is limiting the scope of this project to English. As Jerry studies in an English-only environment and will be attending American university next year, the hope is that this will be an accurate assessment of his ability. It is important to note that while Jerry will be in the twelfth grade, the SAT is designed for American students at a specific grade and reading level (Samuels, S.J. & Farstrup, A.E. (2011) p. 387), so Jerry will always be behind students in America in terms of reading.

III. Emotional Climate

Jerry is a very proactive student who tries to work on and improve his English ability daily. He is cognizant of the fact that his English-reading ability is not up the standards when

compared to an incoming American-university student. He intrinsically likes reading some things, but dislikes academic reading. One of the most important things when fostering literacy is to build a culture of students who not only can read, but also choose to read (Morrow, L.M. & Gambrell, Linda. (2011). p. 22). He only wants to read things that are non-academic in nature. Also when reading long passages, he easily forgets the main idea, and gets stuck on complex sentences. He has a high vocabulary, but struggles with putting together multiple words in a complex sentence. He also feels that he cannot distinguish the difference between the important points of a sentence and non-essential aspects of the sentence.

IV. Literacy History

Jerry's parents are both university graduates. His mother graduated with a degree in physics with a specialization in electricity. His father graduated with a degree in computer science. Neither his parents, nor anyone else in his family have been diagnosed as a learning disabled. However, diagnostic rates in China are much lower than in America (Ho, Chan, Leung, Lee & Tsang, 2005). For example, at least two other students in Jerry's class possibly have ADHD. Yet they go undiagnosed in China, because it would be seen as the child being sick or stupid, and would cause the family to lose face (Ho, Chan, Leung, Lee & Tsang, 2005). The meaning of face in this situation means to keep a families dignity.

Jerry receives a lot of support from his parents. They often ask about class, as well as the various tests that he takes. While it is usually the case that Chinese parents are highly involved in their child's life (Eggleston, Oi, Rozelle, Sun & Zhou, 14), parents of students who are going to America have a barrier to this type of participation. If the parents speak English and they have the time, they usually are active participants with their child's education. However most parents

do not understand English, so they leave a lot of the responsibility of classwork and decisions up the their children. Jerry's father has a basic comprehension of English, while his mother does not speak English at all. They are both managers for their respective companies, yet they make a concentrated effort to be a part of their son's life.

V. Tests Given and Summary of Test Results

Pre - assessment

Through speaking with the student, the researcher came to the conclusion that the student has trouble with academic vocabulary, as well as staying motivated while reading long passages. The researcher decided it would be best to assess the students reading ability in his native language Chinese, basic vocabulary, and academic vocabulary. In speaking with teachers at a local Chinese high school, the researcher came to the conclusion that Chinese assessment techniques were either not in line with the English methods, or were grossly lacking. Therefore, this method was scrubbed. It was ultimately determined that the student basic-English ability and academic-English ability should be assessed.

Initial assessment

Jerry's grade level reading fluency was first determined on July 11th, 2012 at Fuyang High School. The assessment consisted of two non academic reading passages, as well as an academic TOEFL reading passage, a SAT reading passage, and the Jennings informal reading assessment. In the opinion of the researcher, the results should be looked at with scrutiny because of two problems that were recently identified. First, the student took a TOEFL test on July 14th, 2012, so the results were possibly skewed because of how tired the student was from studying. Valencia, S. states that excessive time spent on test preparation, due to to emphasis placed on high-stakes summative assessments have negatively affected student's motivation towards

learning (Samuels, S.J. & Farstrup, A.E. (2011) p. 383). Second, the student recently broke up with his girlfriend, so he had not slept in a couple of nights before the initial assessment. While the researcher thought the student looked more tired than usual, he did not know until after the student called to apologize. The Jennings informal reading assessment was given after the completion of his TOEFL, as well as he generally seemed to be in a better mood. Therefore the results might more accurately assess his English-reading ability.

See figure 1 for overall results.

The two non-academic reading passages as well as follow up questions came out of the *Northstar Building skill for the TOEFL iBT intermediate edition*. This book is meant to be given to students who are two years away from taking the TOEFL. As such there is very little academic vocabulary found in the book. The researcher wanted to identify if the student had more trouble with academic words, so these two readings were used as a baseline.

The first non-academic reading from unit 4 on storytelling was identified for the purpose of this case study as NA1 or Non-academic 1, talked about the metamorphosis of a man into a cockroach (Beaumont, J. (2006) p. 57). There were two words that the researcher deemed were academic in nature, ‘metamorphosis’ and ‘parasite’. When the student was asked later if there was any vocabulary that he did not know, he responded with “no”. The student finished the required reading of 540 words in a time of two minutes and fifty-seven seconds for a rate of 183 words per minute. The student preceded to answer 11 of the 13 questions correctly for comprehension rate of 85 percent.

The second non-academic reading from unit five on language identified for the purpose of this case study as NA2 or Non-academic 2, talked about code switching (Beaumont, J. (2006)

p. 75). There were no words that the research deemed were academic in nature other than the idea ‘code switching’, which the student responded that he understood through the context. However there were some Spanish words, with the English meaning that the student responded were a little disorienting. The student finished the required reading of 571 words in a time of three minutes and fifty-three seconds for a rate of 145 words per minute. The student preceded to answer 7 of the 12 questions correctly for comprehension rate of 58 percent. It should be noted that the student went and a took a nap after the reading because he was so tired. I think this skewed the results.

The first academic reading is found in *The official guide to the TOEFL iBT* **(Artifact 6)** on swimming machines (McGraw-Hill (2009) p. 121), and is identified for the purpose of this case study as TOEFL. The reading has numerous academic vocabulary words, and seemed to really wear down the student. He was exhausted by the end of the final reading. The student finished the required reading of 870 words in nine minutes and eleven seconds for a rate of 141 words per minute. The student preceded to answer 8 of the 12 questions correctly for comprehension rate of 67 percent. It should be noted that the researcher believed this to be the most difficult reading.

The second academic reading was written by Willett, E. as cited in *McGraw-Hill’s 12 SAT practice test and PSAT* **(Artifact 7)**, and is identified for the purpose of this case study as SAT. The passage was about the ways that animals communicate (Anestis, M. & Black, C. (2006). p.121). The researcher asked the student to underline any vocabulary that he did not previously know, to be able to record its academic validity. The student underlined a few terms that had to deal with the different names of the animals. It is the opinion of the researcher that

names are always the most difficult part of learning a new language. The student finished the required reading of 850 words in a time of six minutes and thirty seconds for a rate of 131 words per minute. The student answered all 8 of the questions incorrectly. While the difficulty of the questions was increased, it was not something that the student had not experienced before. Once again the student was tired, therefore the results are believed to be skewed.

Figure 1

Article	Word Count	WPM	Numbers of Questions	Percentage Correct
NA1	540	183	13	85%
NA2	571	145	12	58%
TOEFL	870	141	12	67%
SAT	850	131	8	0%

The Jennings informal reading assessment **(Artifact 5)** goes from grade level pre-K through grade level eight. However for the purpose of this case study, only levels grade six through grade eight were given to the student on July 16th, 2012. There are four parts to the assessment. There is a word list that consists of *Basic Reading Vocabulary* of twenty-five words that students at that particular reading level should have been taught (Harris & Jacobson as cited in Jennings, J. (1982) p. 425). The words that are bolded out and underlined are the words that the student got incorrect. **See figure 3**. The second part is an oral reading CBM. These tests correspond with comprehension and do not align with any instruction (Samuels, S.J. & Farstrup, A.E. (2011) p. 395), so this assessment will not be connected in any way to the lesson. The student is assessed on a background question about the topic, word recognition accuracy, comprehension, as well as rate/fluency. In the third part, the student reads a silent passage. The

student is assessed on background, comprehension, and rate/fluency. The fourth part is a listening section based on the silent reading passage. Because the point of this case study is to assess and instruct on the student's reading ability, this part of the assessment will not be used.

From the grade six word list, the student did not understand the word 'perspiration'. When given instruction about the word, the student responded that he understood the normal English vocabulary of 'sweat'.

From the grade seven word list, the student did not understand four words. He did not understand the word 'bifocals'. But when given instruction to break the word into word parts, 'bi' and 'focal', the student figured out the meaning. The student demonstrated that he already has the ability use word parts to unlock meanings of unknown words, which according to Graves, M.F. & Watts-Taffe, S.M. is highly-recommended strategy (Samuels, S.J. & Farstrup, A.E. (2002). p. 144). The second word was 'bolstered'. The student only understood the word after instruction. The third was 'quizzical. He stated that he knew it was an adjective from the suffix, and that 'quiz' was the root word, yet he was not able to figure it out. The final word was 'cartwheel'. It is the opinion of the researcher, this is a culture-based word, that would be never be taught to a Chinese student, and therefore should be seen as a limited in its assessment ability.

Finally on the eighth grade list the student got two words incorrect. The first word was 'agonized'. When the student was instructed with the noun 'agony', the student still did not understand the meaning. The final word was 'dismantled'. The student understood the synonym 'dis' to mean separate. Yet he did not understand 'mantle'. Once the root word was explained, the student said that he had an understanding of the word. It is the opinion of the researcher that this student would have understood more of these words in a contextual situation.

In the oral reading section, there are three levels that the reader can fall into. The first and the best is the reader reads at an independent level. The second level is the reader reads at an instructional level. The final level is the reader reads at a frustrational level. **See figure 4**.

For the word recognition accuracy level of the sixth-grade level, the student read at an independent level, while his comprehension level was also at the independent level. The passage level for this and all other tests was adequate. For the word recognition accuracy level of the seventh-grade level, the student was at the independent level, while his comprehension level was also at the instructional level. Finally for the word recognition accuracy level of the eighth-grade level, the student was at the instructional level, while his comprehension level was also at the instructional level.

In the silent reading section, the student had to read a section silently while being timed. He first answered questions for assessing comprehension, and then had to identify different elements of the story. Characters, the problem or issue, events, and the resolution all needed to be recalled. **See Figure 4.**

For the 6th grade level of silent reading assessment, the student read at an independent level, while also having a recall ability at a independent level. For the 7th grade level of silent reading assessment, the student read a level at an instructional level, while having a recall ability at an independent level. For the 8th grade level of silent reading assessment, the student read a level at an instructional level, while also having a recall ability at an instructional level.

From these results, it can be concluded that the student reads an adequate level when reading words that are non-academic in nature. These tests are meant for a sixth through eighth grade English level, and they show that student is behind a normal twelfth grade reader in

America. When the difficulty was increased the student's reading speed and comprehension predictably decreased. Therefore for the instruction part of this case study, the instructor gave a lesson that worked specifically on certain areas where the student could improve. The first lesson concentrated on instructional task words. The second lesson concentrated on content specific words. The student was given a TOEFL reading exam as the main material for both lessons.

Post-test

The student was given a week to prepare for the post-test assessment. The student stated that he felt more confident going into the final test. The researcher noted that the student looked well-rested and seemed to be in high spirits. For the post-test, the student was once again given a TOEFL reading exams and a SAT reading exam. The student was told to underline any vocabulary that he did not know, and then attempt to understand the passage through context rather than wasting time trying to understand every meaning.

The first reading was a TOEFL reading, identified as TOEFL 2 about Aggression (ETS. (2009) p. 90 - 95) **See Artifact 9.** Altogether there were 683 words in the reading, which the student read at a pace of 169 words per minute **(Figure 2)**. The student underlined the words hypothalamus, stimuli, sociobiological, psychodynamic, freudian, pent-up, psychoanalysts, catharsis, cognitive. The student understood hypothalamus to be a region in the brain, but not specifically understand what part. The student contextually understood stimuli to mean a reaction to something. The student understood the prefix socio- and the root word biology, but did not clearly understand the meaning. The student understood psychodynamic through the context of the paragraph. The student did recognize Freud in freudian, but did not realize that there was an adjective for his beliefs and methods. The student understood pent-up through the context of the reading to mean held-in. The student understood psychoanalysts through the context to mean

someone who analyzes psychology. The student understood catharsis, once they read the definition at the end. The student understood cognitive to mean some sort of mental process of the brain. The student answered ten of the twelve questions correctly for comprehension rate of 83 percent.

The final reading was a SAT reading, identified as SAT 2 about the development of mathematics throughout history (Anestis, M. & Black, C. (2006) p. 135 - 137). There were also 683 words in the reading, which the student read at a pace of 159 words per minute **(Figure 2)**. The student underlined many words, and there were two groups of words that the student had trouble with. First there was the groups of people that the students did not know, but understood were groups of people; the Babylonians, Oracle, Delian, Pythagoreans, Hipposus, Neoplatonist, Proclus, Solomon, and Mathematekoi. The second group of words varied more; edifice, celestial, divine, reciprocally, metaphysics, cauldron, cubit, whim, caprice, eschewing, capricious, and inexorable. The student understood edifice to mean some sort of building. The student did not understand celestial. The student understood divine to be somehow connected to god. The student did not understand reciprocally, and as a result incorrectly answered the question that asked what it meant. The student had a rough understanding of what metaphysics meant through reading the context. The student understood that a cauldron is some object through reading the context. The student understood that a cubit was some form of measurement. The student did not understand whim, caprice. eschewing, capricious, nor inexorable. The student answered ten of the thirteen questions correctly for comprehension rate of 77 percent.

Figure 2

Article	Word Count	WPM	Numbers of Questions	Percentage Correct
TOEFL 2	643	169	12	83%
SAT 2	643	159	13	77%

Figure 3 (Harris & Jacobson as cited in Jennings, J. (1982) p. 425)

Words	Level 6	Level 7	Level 8
1	sunup	algebra	excelled
2	**perspiration**	comical	biological
3	embarrassment	**bifocals**	dissecting
4	frustration	desperation	**agonizing**
5	drainage	computation	envision
6	parallel	**bolstered**	overpowering
7	effective	mistrust	hysteria
8	downpour	expectation	preserved
9	alternate	**quizzical**	contemplation
10	rainwater	cartoonist	**dismantled**
11	acknowledged	appreciative	corrugated
12	midafternoon	perceived	innermost
13	inspection	confront	administrator
14	enterprising	ample	disheartened
15	declined	alternative	extensive
16	veterinarian	tolerated	journalist
17	biology	coordination	correspondent
18	recommended	acrobatic	southeastern
19	zookeeper	inseparable	eroded

Words	Level 6	Level 7	Level 8
20	placement	enthusiastically	seacoasts
21	observation	contempt	devastated
22	orangutan	gymnastics	phenomenal
23	specialize	**cartwheel**	inclination
24	equipped	unison	prestigious
25	surgery	elegance	ambassadors
Number Wrong	1	5	2

Figure 4

	Oral	Oral	Oral	Silent	Silent
Grade Level	**Word Recog. Acc. Level**	**Compre. Level**	**Passage Level**	**Compre. and Passage Level**	**Story Recall**
6	Independent	Independent	Adequate	Independent	Independent
7	Independent	Instructional	Adequate	Instructional	Independent
8	Instructional	Instructional	Adequate	Instructional	Instructional

VI. Lesson Plan Matrix

The student will be instructed as to better understand the contextual meaning. According to Graves, 2000; Stahl, 1998; and Sternberg the most useful and recommended teaching strategy is one that uses context (Samuels, S.J. & Farstrup, A.E. (2002). p. 143). This strategy should be very effective for this student who does not have the cultural understanding of American students, yet is required to take both the TOEFL and the SAT which is filled culturally-specific vocabulary. While standardized testing can cause teachers to teach to the exams, thus limiting instruction and curriculum (Haladyna & et al. (1998). p. 263), it is the belief of the researcher that this necessary to help the student with his desired goals of getting into an American university. If the student cannot understand the definitional meaning through instruction, then he

should better be able to understand the contextual meaning. Graves, M.F. & Watts-Taffe, S.M. state that vocabulary instruction is most effective when the student understands both the definition of a word and the context in which it is found (Samuels, S.J. & Farstrup, A.E. (2002). p. 143). Carlo et al. agreed with this sentiment stating for vocabulary learning in general, especially for students that do not speak English as a native language, is central to a greater understanding of English (as cited in Morrow, L.M. & Gambrell, Linda. (2011). p. 42).

Lesson Foci/Date	Objectives	Instructional materials	On-going assessment
July 11th, 2012	Initial Assessment	2 Pre-TOEFL reading, TOEFL reading, SAT Reading Section	Reading Speed, Comprehension Assessment, Vocabulary Assessment
July 16th, 2012	Secondary Assessment. Asses fluency	Jennings Informal Reading Assessment	word recog. accuracy, comprehension, rate / fluency
July 24th, 2012	Student will be able to better understand instructional task words as well as typical TOEFL reading questions.	Low level difficulty TOEFL reading. Skype. Typical TOEFL questions document.	Reading Speed and Comprehension. TOEFL reading test.
July 25th, 2012	Student will be able to better understand the vocabulary through the contextual understanding. Common Core Standard # 4 for Grades 11 - 12 Informational Text (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010)	High level difficulty TOEFL reading. Skype.	Reading Speed and Comprehension. TOEFL reading test.
July 30th, 2012	Post-test Assessment	High level difficulty TOEFL reading. Skype.	Reading Speed and Comprehension. TOEFL reading test.

VII. Reflections on Your Differentiated Literacy Lesson Plans

The instruction made a meaningful contribution to the student's reading progress. Not only did the student's reading speed go up on academic reading, but also the student's comprehension was marginally higher. The student was able to completely finish the reading, and remained positive and enthusiastic. The student also stated that he continued using the methods learned in the lesson when he practiced at home. While these methods are meant for standardized tests in particular, they seemed to help the student to be less frustrated. Therefore this method seems to be a good way to help advanced ELLs stay motivated and on schedule.

The student learned through indirect instruction as well as strategy instruction, ways that would help him attack standardized tests better. The researcher scaffolded instruction over the two lessons, so that the student was able to build a better understanding of vocabulary instruction. A contextual technique was provided to the student that allowed him to read faster, while at the same time maintain comprehension. By leaving out the difficult academic words on the TOEFL reading section, it modeled the ability to be able read faster and maintaining comprehension. This reinforced the contextual understanding that American students have by virtue being native speakers to the ELL.

This technique could be extended in future lessons to include the reading of books with difficult vocabulary. Students could then create a word journal of the words underlined. First through contextual understanding, and finally through definitional understanding, a student would be able to understand the book better. This way the technique could be applied to real word conditions, and not just standardized tests.

There was only one critical decision that the researcher made during the first assessment and that was to allow the student to take a nap, after demonstrating obvious signs of frustration and exhaustion. The assessment was given during in the middle of the afternoon on a hot day. Since the assessment involved giving two non-academic readings with comprehension questions, two TOEFL readings with comprehension questions, and two SAT readings with comprehension questions, it might be better in the future to space out the assessments over a couple of days. This is one major change that could be made for future lessons.

Objectively, in the post tests the students reading speed and comprehension marks for both the TOEFL and the SAT went up over the initial assessments. The TOEFL mark increased to 169 wpm from 141 wpm and the comprehension rate increased 83 percent from 67 percent. The SAT mark increased to 159 wpm from 131 wpm and the comprehension rate increased to 77 percent from zero percent. It should be noted that the initial SAT assessment was the last day during a long and hot day, so the scores should be viewed with contempt. Subjectively, the student showed less signs of frustration and generally seemed happier. The technique clearly helped the student get through the long readings faster with more confidence.

The first change that the researcher would make would be to change the schedule. More classes would be scheduled at earlier times, and hopefully in cooler weather not during the summer. The second change would be for the researcher to do the entire lesson in person rather than over Skype. While Skype did allow the researcher and the student to communicate without problems, it did make the instruction less direct and less personalized. A third change would be to find a vocabulary word list that was more academic in nature, and applied to grade eleven and twelve.

The reading instruction is appropriate for the student in terms of standardized testing and does help their contextual understanding, but if used as an every day tool would make the student less likely to learn the difficult vocabulary. Therefore, in the opinion of the researcher a more traditional model of vocabulary instruction such as Marzano's six steps (Marzano, R.J. (2005). p. 14), would be better at helping the student build vocabulary over the long run.

Aspects that the researcher learned that have affected the instruction are varied. First there is the K-W-L process (Morrow, L.M. & Gambrell, Linda. (2011). p. 349 - 350) that asks the student what they know, what they want to learn, and what they have learned. Second as the researcher primarily works oversees, standards such as Common Core (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010) were applied to the lesson to make the lesson compatible with national standards. In this way the instruction will be compatible with other ELLs instruction, even though the student is in America. Third, the researcher had never done as assessment before, so felt relatively inexperienced. However as time went along, the process became more familiar.

VIII. Recommendations to Teachers / Parents

I would recommend to Jerry's teachers and parents to encourage him to remain positive and enthusiastic. He is a very smart kid who becomes frustrated if he feels that something is not easy. Yet, in the opinion of the researcher, he is more than capable of getting good grades on both the TOEFL and the SAT. He should be able to enter an American university as long as keeps to the commitment that he has made for himself. While he does do better when he is intrinsically motivated, he has decided that this is the path that he wants to take, so every effort should be made to encourage him along. Jerry's biggest problem is the lack of academic vocabulary and will hinder him as moves onto to college. Unfortunately, Jerry must do this alone as his parents

and relatives do not speak English. Therefore, his parents need to find other ways to encourage him and help him. His teachers need to make every effort to challenge him with difficult vocabulary instruction. I have no doubt that Jerry will try harder if challenged more. As he is the leader of his senior class, his commitment to work will go along way to encourage his classmates. Jerry's best reward will be the satisfaction he gets from helping his classmates and entrance into a quality university on America. I want to thank Jerry for working so hard during the month of instruction and wish nothing but the best for him.

我会建议Jerry的老师和家长去鼓励他保持积极和热情。他是一个非常聪明的孩子，一旦觉得某事有难度就会变得沮丧。不过，在研究者看来，他完全有能力在托福和 SAT 测试中取得高分。他应该能够考取一所美国大学只要他坚守当时给自己的承诺。他自身充满动力的时候确实表现更佳，他已经决定考取美国一所大学是他想走的人生路径，所以大家应该竭尽全力地鼓励他。他最大的问题就是学术词汇量缺乏，进入大学后这必然对他产生一定影响。不幸的是，他必须独立克服它，因为他父母和亲戚都不懂英语。因此，他父母需要通过其他的方式来鼓励和帮助他。他的老师则需要不遗余力地通过高难度的词汇结构来挑战他。毫无疑问挑战难度越大，他会越努力。作为学生会主席，他对自己承诺的兑现将会极大地鼓舞其他同学。对他来说最大的奖励将是从帮助其他同学成功考取美国高等大学中获得的满足感。我要感谢Jerry在这一个月里努力地完成所有指示，我祝他一切顺利。

Outline for a Daily Lesson Plan #1

Date: July 24, 2012

Objective(s) for today's lesson: The student will better understand instructional task words and be able to identify the different types of TOEFL questions.

Rationale: During the initial assessment, the student showed a weakness in understanding instructional task words. As the student needs to take the TOEFL and the SAT exams to be admitted to an American university, this is a very important concept to understand. Also, by teaching the student the particular TOEFL questions, the student will be better able to understand the scaffolding needed for TOEFL

Materials & supplies needed: Limited Difficulty TOEFL reading section and corresponding questions **Artifact #1**, computer with Skype, TOEFL questions document **Artifact #2**

Introduction to the lesson (What do you know about instructional task words?) (Where do you see these words usually?) (Can you give me some examples of instructional task words?) (3min)	Student centered learning, check for prior knowledge by using the K-W-L process
OUTLINE of key events during the lesson	
• The student will attempt to brainstorm as many instructional task words as possible (Have the student type in as many as he can) (Have the student define these words, use them in a sentence, give antonyms and synonyms) (~3 min)	Brainstorm prior knowledge. Provide ways to personalize meaning. Use antonyms and synonyms
• Give the student the TOEFL questions documents. Explain the 11 typical TOEFL questions and show examples of each question. (~8 min)	Teacher centered instruction, scaffolding learning.
• Give the student the questions for the TOEFL reading section (Have him find as many instructional task words as possible) (Have them identify what type of questions are being asked) (Have the student paraphrase the question into their own meaning) (~8 min)	Direct learning, personalize meaning, student centered learning
• Once the questions have been identified and the meaning paraphrased, give the student the reading and have them go over it. Make sure to have them underline any vocabulary that is too difficult, and then do not waste time on these words. Have them answer the questions. Look over the answers to check for comprehension. (~8 min)	Direct experience with TOEFL test
Closing summary for the lesson Ask the student, what did you learn today? Have the student read two other TOEFL passages for homework, and identify the TOEFL questions asked, paraphrase their meaning, answer the questions. (~2 min)	Follow up with the K-W-L process, convert new knowledge into continued use through homework
Transition to next learning activity Have the student look up the vocabulary that was underlined from the reading in a dictionary. Ask him to use the Marzano theory on vocabulary, but no more than 10. Define, make a sentence, draw a picture, synonym, say the word (~2 min)	Connecting vocabulary meanings using visual, kinesthetic, and auditory intelligence
Assessment I will use the TOEFL test as an assessment after both lessons.	***Scaffolding, Direct experience***

Artifact #1 (Kinsall, S. & Pierce, D. (2009) p. 226 - 230)

READING DRILL #2

National Flags

➤The flag, the most common symbol of national identity in the modern world, is also one of the most ancient. The traditional flag of fabric is still used to mark buildings, ships, and diplomatic caravans by national affiliation, but its visual design makes it adaptable for other roles as well. Most flags have a compact, rectangular shape and distinct visual symbolism. Their strong colors and geometric patterns are usually instantly recognizable even if miniaturized to less than a square centimeter. Images of flags can thus serve as identifying icons on airliners, television broadcasts, and computer displays.

Despite its simplicity, the national flag as we know it today is in no way a primitive artifact. It is, rather, the product of millennia of development in many corners of the globe. Historians believe it had two major ancestors, of which the earlier served to indicate wind direction. ■ Early human societies used very fragile shelters and boats. ■ Their food sources were similarly vulnerable to disruption. ■ Even after various grains had been domesticated, people needed cooperation from the elements to assure good harvests. For all these reasons, they feared and depended on the power of the wind, which could bring warmth from one direction and cold from another.

Ascertaining the direction of the wind using a simple strip of cloth tied to the top of a post was more reliable than earlier methods, such as watching the rising of smoke from a fire or the swaying of field grasses. The association of these prototypes of the flag with divine power was therefore a natural one. ■ Tribes began to fix long cloth flutters to the tops of totems before carrying them into battle, believing that the magical assistance of the wind would be added to the blessings of the gods and ancestors represented by the totem itself.

➤**These flutters may seem like close kin of our present-day flags, but the path through history from one to the other wanders through thousands of years and over several continents.** The first known flag of a nation or ruler was unmarked: The king who established the Chou Dynasty in China (around 1000 B.C.) was reputed to have a white flag carried ahead of him. This practice may have been adopted from Egyptians even further in the past, but it was from China that it spread over trade routes through India, then across Arab lands, and finally to medieval Europe.

In Europe, the Chinese-derived flag met up with the modern flag's second ancestor, the heraldic crest. The flags used in Asia may have been differentiated by color, but they rarely featured emblems or pictures. European nobles of the medieval period had, however, developed a system of crests (symbols or insignias specific to particular families) that were commonly mounted on hard surfaces; shields to be used in battle often displayed them especially prominently.

➤The production of these crests on flags permitted them to be used as heralds, meaning that they functioned as visual announcements that a member of an important household was present. While crests began to appear on flags as well as shields, the number of prominent families was also increasing. They required an ever greater number of combinations of stripes, crosses, flowers, and mythical animals to distinguish themselves. These survived as the basic components of flag design when small regional kingdoms were later combined into larger nation-states. They remain such for many European countries today.

Some nations, particularly those whose colors and emblems date back several hundred years, have different flags for different official uses. For example, the flag of Poland is a simple rectangle with a white upper half and red lower half. The colors themselves have been associated with Polish nationalism since the 1700s. They originated as the colors of the Piast family, which during its rule displayed a crest bearing a white eagle on a red field. Homage is paid to the Piast Dynasty in the

1. Paragraph 1 of the passage describes the design of the typical flag as

   (A) unfamiliar to people from other countries
   (B) likely to change as technology improves
   (C) suited to many different uses
   (D) older than the country it represents

   Paragraph 1 is marked with an arrow [➤]

2. The word miniaturized in the passage is closest in meaning to

   (A) publicized
   (B) colored
   (C) made brighter
   (D) made smaller

3. The word primitive in the passage is closest in meaning to

   (A) ancient
   (B) unsophisticated
   (C) identifiable
   (D) replaceable

4. The word they in the passage refers to

   (A) grains
   (B) people
   (C) elements
   (D) harvests

5. The earliest ancestors of the flag were associated with divine power because

   (A) they were flown as high in the sky as people could reach
   (B) they were woven from valuable field grasses
   (C) they moved with the wind
   (D) tribes that flew them always won battles

6. The word fix in the passage is closest in meaning to

   (A) create
   (B) respect
   (C) attach
   (D) blow

7. Which of the sentences below best expresses the essential information in the boldfaced sentence in the passage? *Incorrect* answer choices change the meaning in important ways or leave out essential information.

   (A) Despite the obvious similarities between the two, ancient flutters developed very slowly and indirectly into modern flags.
   (B) Despite the widespread use of modern flags, flutters in the ancient style are still used in some parts of the world.
   (C) Historians are slowly discovering evidence of how the flutters used on ancient totems developed into modern flags.
   (D) Ancient flutters are still sometimes used instead of modern flags to represent a country over official journeys.

8. According to paragraph 4 of the passage, the first known national flag in history

   (A) was not carried into battle
   (B) is still used in China today
   (C) was copied by the Egyptians
   (D) was not colored or patterned

   Paragraph 4 is marked with an arrow [➤]

9. As discussed in the passage, a crest is

   (A) the most important member of a household
   (B) the color of a particular flag
   (C) the symbol of a particular family
   (D) a European noble

10. According to paragraph 6 of the passage, the number of flag designs increased because

    (A) fewer shields were being made for battle
    (B) nation-states were becoming larger
    (C) artists had greater freedom in creating flags
    (D) more families wanted their own symbols

    Paragraph 6 is marked with an arrow [➤]

11. The word them in the passage refers to

    (A) crests
    (B) families
    (C) hard surfaces
    (D) shields

12. The word components in the passage is closest in meaning to

    (A) styles
    (B) makers
    (C) countries
    (D) parts

13. The two flags of Poland mentioned in the passage differ in that

    (A) they do not use the same colors
    (B) they originally represented different families
    (C) only one is used officially
    (D) one does not have a crest

14. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

    Therefore, strong winds could easily tear roofs from houses or cause high waves that imperiled travelers.

    Where would the sentence best fit?

    Click on a square [■] to add the sentence to the passage.

15. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. ***This question is worth 2 points.***

There were many historical steps in the evolution of the national flag as it's known today.

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-
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Answer Choices	
A Chinese king's practice of having a flag carried ahead of him spread across Asia to Europe.	Ancient tribes respected the power of the wind and began to carry totem poles with flutters for good luck in battle.
Many countries have followed Poland's example and used an eagle on their flags to symbolize strength and power.	Heraldic crests and colors combined with a standard rectangular shape to make a symbol with many uses.
Early humans lived lives that were vulnerable to disruption by natural forces.	Some flags used in Asian countries may have been colored in distinct ways.

Artifact #2 (Kinsall, S & Pierce, D. (2009) p. 184)

The question types on the TOEFL are as follows:

1. **Vocabulary in context:** These are some of the most common questions on the TOEFL. You may be asked the meaning of a word or phrase. These questions are some of the easiest, so do them on your first pass.
2. **Reference:** These questions usually ask you what noun a pronoun connects to, though sometimes they may ask you about a noun, adverb, or adjective. Because these questions also direct you to a certain point in the passage, do these on your first pass.
3. **Lead words:** Some questions will refer to a word highlighted in gray in the passage. Other questions may ask about a specific word or phrase, even if there is nothing highlighted in the passage. Also do these on your first pass.
4. **Detail:** Often the easiest type of question, detail questions ask about specific facts from the passage. Again, get these questions done on your first pass.
5. **Paraphrase:** Paraphrase questions ask you to find the answer choice that means the same as a bolded sentence in the passage.
6. **Definition:** This type of question asks you to find the part of the passage that defines a certain word or phrase.
7. **Before/after:** These questions are rare. They ask you what kind of paragraph would likely precede or follow the passage.
8. **Sentence insertion:** For this type of question, you'll see four black squares [■] placed throughout the passage. Your job is to figure out where a new sentence would fit best.
9. **EXCEPT/NOT/LEAST:** These questions can be some of the most difficult on the test so save them for the second pass. For these, you are looking for the answer that is *not* supported by the passage. EXCEPT/NOT/LEAST questions also tend to take longer to answer than most multiple-choice questions.
10. **Inference:** This popular question type can be one of the trickiest types; therefore, you'll want to save them for the second pass. Inference questions ask you to find the statement that is implied or suggested by the passage. Remember, the TOEFL uses a narrow interpretation of *inference*, and correct responses to these questions *must be true* based on the information provided in the passage.
11. **Summary:** Typically worth two points, these questions ask you to find main points and ideas from the passage. Because they require some knowledge of the passage, do them on your second pass after you have had a chance to become familiar with the material.

Outline for a Daily Lesson Plan #2

Date: July 25, 2012

Objective(s) for today's lesson: The student will be able to read faster and more fluently, by increasing their skills of contextual understanding by using the TOEFL reading section.

Rationale: During the initial assessment, the student showed a weakness in vocabulary comprehension, as well as reading speed. This lesson will teach the student to depend more on contextual understanding in the hopes of increasing reading speed and comprehension.

Materials & supplies needed: High Difficulty TOEFL reading section and corresponding questions **Artifact #3**, computer with Skype, Dictionary

Introduction to the lesson Go over the homework from the day before when the student underlined the difficult vocabulary and then defined said vocabulary. Check comprehension of the ten words. Ask the student if they know the meaning of context, and have them give an example of understanding something through context. If the student cannot give an example of context, provide the student with an example. (5 min)	Connect to previous experience. Start the K-W-L process. Assess comprehension of previous lesson. Direct experience.
OUTLINE of key events during the lesson	
Give student the TOEFL reading section with the difficult vocabulary words blanked out. Check comprehension using the TOEFL questions. Make sure to mark the student's responses down somewhere, while also timing responses, to be compared against previous assessments. Reading speed should improve. (10 min)	Direct practice with TOEFL. Check comprehension. Assess reading speed
Have the student write in what part of speech they believe the blanked out section should be. Then have the student predict a word that can be placed into the blanks. (3 min)	Connect to previous grammar knowledge. Use prediction as a method of instruction.
Next give the difficult vocabulary words to the student and have them define the words with a dictionary, use them in a sentence, and come up with antonyms or synonyms if possible. (8 min) **Artifact #4**	Use dictionary in vocabulary instruction. Antonym / Synonym Instruction
Next have the students fill the difficult vocabulary words into the blanks, and then allow the student to reread the reading section and answer the questions. (8 min)	Learning through compare and contrast methods
Hopefully the student will have realized that it is sometimes easier to understand the context than to waste time trying to decipher every academic word.	
Closing summary for the lesson (Ask the student what they have learned through this lesson.) Explain to the student that this is a process for standardized tests, but that this will also help the student to be not get frustrated as much. (2 min)	Finish the K-W-L process. Connect instructional methods to real-world methods.
Transition to next learning activity Give student two other TOEFL reading sections without difficult vocabulary to practice on.	Self-practice as instruction
Assessment I will use the TOEFL test as an assessment after both lessons.	***Reading speed, Comprehension, Direct experience.***

Artifact #3 (Sharpe, P. (2004) p. 272 - 274)

It has long been known that when the green parts of plants are exposed to light under suitable conditions of temperature and moisture, carbon dioxide is absorbed by the plant from the _____ CO2, and oxygen is released into the air. This exchange of gases in plants is the opposite if the process that occurs in _____ in this plant process, which is called photosynthesis, carbohydrates are _____ in the presence of light from carbon dioxide and water by specialized structures in the cytoplasm of plant cells called chloroplasts. These chloroplasts contain not only two types of light-trapping green _____ but also a vast array of protein substances called enzymes. In most plants, the water required by the photosynthesis process is absorbed from the soil by the roots and _____ through the xylem of the root and stem to the chlorophyll-laden leaves. Except for the usually small percentage used in respiration, the oxygen released in the process _____ out of the leaf into the atmosphere through stomates. In simple terms, carbon dioxide is the fuel, and oxygen is the product of the chemical reaction. For each molecule of carbon dioxide used, one molecule of oxygen is released. Here is a summary chemical equation for photosynthesis.

$$6CO2 + 6H2O >>> C6H12O6 + 6O2$$

As a result of the process, _____ energy from the sun is stored as chemical energy. In turn, the chemical energy is used to decompose carbon dioxide and water. The products of their _____ and recombined into a new compound, which successively builds up into the more and more complex substances that comprise the plant. These organic substances, that is, the sugars, starches, and cellulose, all belong to the class of _____ molecules. In other words, the process of photosynthesis can be understood as an enzyme-induced chemical change from carbon dioxide and water into the simple sugar glucose. This carbohydrate, in turn, is utilized by the plant to generate other forms of energy, such as the long chains of plant cells or polymers, that comprise the cellular structures of starches and cellulose. Many intermediate steps are involved in the production of a simple sugar or starch. At the same time, a balance of gases is preserved in the atmosphere by the process of _____.

1. Which title best expresses the ides in this passage? A. A chemical equation B. The process of photosynthesis C. The parts of Vascular Plants D. The Production of Sugar	2. The combination of carbon dioxide and water to form sugar results in an excess of A. water B. oxygen C. carbon D. Chlorophyll

3. Which process is the opposite of photosynthesis? A. Decomposition B. Synthesization C. Diffusion D. Respiration	4. In photosynthesis, the energy from the sun is A. changed to chemical energy B. conducted from the xylem to the leaves of green plants C. not necessary to the process D. released one to one for each molecule of carbon dioxide
5. Click in the sentence in paragraph 1 that describes how oxygen is released into the atmosphere. Paragraph 1 is marked with an arrow (>>)	6. The word stored in paragraph 2 is closest in meaning to A. retained B. converted C. discovered D. specified
7. The word their in paragraph 2 refers to A. radiant energy and chemical energy B. carbon dioxide and water C. products D. complex substances	8. The word successively in paragraph 2 is closest in meaning to A. with effort B. in a sequence C. slowly D. carefully
9. Besides the manufacture of food for plants, what is another benefit of photosynthesis? A. It produces solar energy B. It diffuses additional carbon dioxide into the air. C. It maintains a balance of gases in the atmosphere D. It removes harmful gases from the air.	10. Which of the following is NOT true of the oxygen used in photosynthesis? A. Oxygen is absorbed by the roots. B. Oxygen is the product of photosynthesis. C. Oxygen is used in respiration. D. Oxygen is released into the atmosphere through the leaves.

Artifact 4

atmospheric	respiration	synthesized
chlorophyll	translocated	diffuses
radiant	decomposition	organic
photosynthesis		

Artifact 5

Jennings Informal Reading Assessment (Caldwell, J. & Jennings, J. & Lerner, J. (2005)
The Jennings Informal Reading Assessment, an informal reading inventory (IRI), was developed by Dr. Joyce Jennings. It was field-tested in the Reading Center of

Northeastern Illinois University and in several schools in the Chicago metropolitan area with the help of graduate students in the Departments of Reading and Special Education at Northeastern Illinois University. The word lists consist of 25 words each. They were developed using Basic Reading Vocabularies (Harris & Jacobson, 1982). Each word presented in the word lists is included in the passages read by the students. For those words appearing in the oral reading passages, you can compare students' ability to recognize words in isolation and in context. The reading passages consist of two passages per level: Preprimer through Grade 8. One set of these graded passages can be used to assess students' oral reading, and the other can be used to assess silent reading. You may also wish to use the silent reading passages to assess students' listening comprehension. Abbreviations used in this instrument include: Lit. = Literal Ind. = Independent Level
Inf. = Inferential Inst. = Instructional Level
Comp. = Comprehension Frust. = Frustrational Level
When you have completed the IRI, use the Summary Record Sheet to record your results. Then determine the oral, silent, and estimated overall reading levels as described in Chapter 3.

442 Appendix D
Level 6, Oral Passage 328 Words
Background Question: What do you have to do if you don't have enough money to buy something special?
Prompt: Read this story to find out how Mike worked to earn money for something he wanted very badly.

Mike's New Bike
Mike squinted at the midday sky. He had been working since sunup and needed a break. Wiping the perspiration from his face, he continued his exhausting work.
Mike had been working all summer to earn enough money for a new bike. His ancient, beaten up bike was a total embarrassment. But his mom said they couldn't afford a new one. Even though Mike knew she was right, in his frustration, he shouted back at her, "You never give me anything!" He only needed fifty more dollars. Mr. Painter had offered him forty dollars to dig a new drainage ditch. He wanted to stop the flooding in his rose garden. Mr. Painter wanted the new ditch to run parallel to the old one. Mike didn't think that would be effective in a downpour. So he suggested an alternate plan to direct the rainwater away from the house.
Mike noticed Mr. Painter watching him from behind a curtain. Knowing the old grouch, he'd deduct that little brow-wiping break from his pay. As he returned to his work, Mike waved. Mr. Painter acknowledged the wave and disappeared. Mike worked steadily until midafternoon. Then Mr. Painter came out for an inspection. "Why don't you lay off for today and get a fresh start tomorrow?" "I'd rather finish up," replied Mike. "It's supposed to rain tonight, and I'd like to have this operational before the next storm." About six-thirty, Mike laid the last pipe in place. As he was returning the tools to the shed, Mr. Painter walked up, "Mike, you're an enterprising young man.You don't see many young people these days who care about their work." He handed Mike an envelope and went to inspect his roses. When Mike opened the envelope, he counted

three twenty-dollar bills. He ran to catch Mr. Painter and started to hand one back to him. Mr. Painter declined the offer, “Take it as thanks for keeping an old man from making the same mistake twice.”

Comprehension Questions
Lit-1 Why was Mike trying to earn money?
To buy a bike
Lit-2 What was Mike doing to earn money?
Digging a ditch
Inf-3 What was wrong with Mike’s old bike?
Accept either: it was an embarrassment or it was old and beaten up
Inf-4 Why did Mike yell at his mom?
Accept either: He was frustrated or angry that she said she couldn’t buy him a bike
Inf-5 Why didn’t Mike think Mr. Painter’s plan for the drainage ditch would be effective?
It was in the same direction as the old ditch
Inf-6 How do you think Mike felt about Mr. Painter as he was working?
He didn’t like him
Lit-7 How much more money did Mike need to buy the bike he wanted?
Fifty dollars
Lit-8 Why didn’t Mike want to stop when Mr. Painter suggested he quit for the day?
He wanted to finish before it rained
Lit-9 How much did Mr. Painter promise to pay Mike for digging the ditch?
Forty dollars
Inf-10 Why do you think Mr. Painter paid Mike more than he had promised?
Accept any of these: Mike suggested how to dig the ditch, he wanted to stay and finish, or he cleaned the tools

444 Appendix D
Level 7, Oral Passage 350 Words
Background Question: What happens when someone gets in trouble in your class?
Prompt: In this passage, Peter gets in trouble with Mr. Galvin. Read it to find out what happens.
In Trouble Again

I knew I shouldn’t be drawing in algebra class, but I just couldn’t resist. Mr. Galvin had such a comical look as he peered over his bifocals at Jamie’s futile attempt to solve the problem on the board. Maybe I could call this brilliant work of art “Galvin-eyes” or something equally insulting. I suddenly realized Mr. Galvin was calling my name, “Peter, what is your solution to this problem?” Oh no, Mr. Galvin was walking in my direction! If I got in trouble again, I could be suspended. In desperation, I tried to adjust my book to cover the drawing, but it was too late. “Peter, have you completed the computation for problem number seven?”
Even though I hadn’t even started the problem, I replied in my most respectful tone, “Not quite, sir.” When he stopped at the front of the row, it bolstered my confidence. “I’ll have it done in just a couple of minutes.” Why did I always have to open my big mouth, instead of leaving well

enough alone? Now he was coming directly toward my desk. Mr. Galvin, in a tone of total mistrust, suggested, “Why don’t you come to the board and show us how far you’ve gotten, and perhaps your classmates can help you complete the problem?” As I fumbled for an answer, Mr. Galvin reached my desk. He lifted my book with the expectation of finding a partially solved algebra problem. Instead, he found a drawing of himself, bifocals and all,
glaring at Jamie with a quizzical look on his face. At least I hadn’t had time to write the caption!
“Peter!” boomed Mr. Galvin, “just what do you expect to make of yourself with this kind of behavior?” Without thinking how it might be taken, I replied, “A cartoonist.”
Wrong answer! The class gave an appreciative round of applause. But Mr. Galvin perceived this as yet another attempt on my part to confront him. Once again, I had tried to undermine his authority with the class. I had ample opportunity to think of alternative replies while I waited in the assistant principal’s office.

Comprehension Questions
Lit-1 What was Peter doing instead of his algebra problem?
He was drawing a cartoon of Mr. Galvin
Inf-2 Why was Peter drawing a picture of Mr. Galvin?
Accept any of these: Because he thought he looked so funny, he didn’t like him or he wanted to be a cartoonist
Inf-3 Why did Peter lie when Mr. Galvin asked him if he had finished the problem?
If he got in trouble any more, he could be suspended
Lit-4 Who did Mr. Galvin say could help Peter finish the problem?
His classmates
Lit-5 What did Mr. Galvin expect to find under Peter’s algebra book?
His algebra problem
Lit-6 What did Mr. Galvin really find under the algebra book?
Accept either: Peter’s drawing or a picture of himself
Inf-7 Why do you think Peter was glad he hadn’t written a caption?
It would have been even more insulting to his teacher than the drawing
Lit-8 What does Peter want to be when he grows up?
A cartoonist
Inf-9 Why did Peter’s answer make Mr. Galvin so angry?
Accept any of the following: He thought Peter was making fun of him, he thought Peter was confronting
him, or he thought Peter was trying to undermine his authority
Inf-10 How do you know this isn’t the first time Peter has gotten in trouble in algebra class?
Accept either: Mr. Galvin thinks this was another attempt by Peter to disrupt the class or Peter thinks if he gets in trouble again, he will be suspended

446 Appendix D
Level 8, Oral Passage 336 Words
Background Question: What is biology? What does dissecting mean?
Prompt: In this passage, James is about to take biology. Read it to find out what happens.

Biology Woes

James had always excelled in science, winning every science fair and making straight A's. But this year, he would be taking Biological Studies, and he knew that meant dissecting animals. He was agonizing over the thought of cutting up a creature that had been alive. He couldn't even envision cutting into a cockroach—and he hated those! James started the summer with an overpowering fear of embarrassing himself. By July, he had worked himself into a state of near hysteria. To solve his problem, James bought a dissecting kit to practice. Inside the kit, he found an address to order preserved animals. After some contemplation, James chose an earthworm, a crawfish, a frog, and a snake. When the animals arrived, James carefully dismantled the corrugated box so he wouldn't damage the contents. When he reached the innermost container, he was shocked beyond words! There must have been a mistake. Not only were these animals not preserved, they weren't even dead! James looked at the order form and discovered his mistake. He had marked the wrong code! Suddenly, James was the proud owner of four creatures who were very much alive. He had no idea what to feed any of these animals, nor any desire to find out. Deciding to dispose of them as quickly as possible, he biked to the nearest pet shop to sell the animals. The manager told him they only bought from licensed dealers. He tried the administrator of the zoo, but she didn't have room for any more animals just now. James was disheartened. He realized he would have to accept responsibility for the animals himself.
First, James went to the library. There he learned that the animals would have to be housed in separate containers. He went back to the pet store and bought four small aquariums. By the end of the summer, James had learned an extensive amount of information about his new pets. What had started as a dissection project had turned into a valuable study of live animals.

Comprehension Questions

Lit-1 What school subject was James best at?
Science
Inf-2 Why was James worried about taking biology?
Accept either: he was afraid he would embarrass himself or he didn't want to cut up animals
Lit-3 How did James decide to solve his problem?
He bought a dissecting kit to practice
Lit-4 What is one kind of animal that James thought he would need?
Accept any: Earthworm, crawfish, snake, frog
Inf-5 Why was James surprised when he opened the boxes?
The animals were alive
Lit-6 Why wouldn't the pet shop take the animals?
They could only buy from licensed dealers
Lit-7 Why wouldn't the children's zoo take the animals?
They didn't have room
Inf-8 How do we know that James cared about animals?
Accept any of these: he tried to find a home for them, he fed them, he took care of them, or he didn't want
to dissect them

Inf-9 What did James finally do with the animals?
Accept either: he kept them or he took care of them
Inf-10 How did James' mistake become a positive experience?
Accept either: he learned a lot about the animals or he got four new pets

Appendix D 469
Level 6, Silent Passage 333 Words
Background Question: What is a veterinarian?
Prompt: Read this passage to find out about a girl named Pam, who wants to be a veterinarian.

Pam's New Job
More than anything, Pam wanted to be a veterinarian. She was great with animals. For the last two years, Pam had volunteered at the zoo. But this summer, she was going to be paid. Pam's biology teacher had recommended her to work in a special science program. Pam was disappointed when she found out she was assigned to the zoo nursery. Pam didn't want to feed a bunch of baby animals. She had hoped for something more exciting, like reptiles. Pam decided to talk to the zoo's vet, Dr. Mack. Maybe she would understand how Pam felt, and Pam could ask her to convince the zookeeper to change her placement.
When Pam arrived at the zoo, Dr. Mack was in the nursery. There had been an emergency, and Dr. Mack had been called to help. The nurse asked Pam to wait for Dr. Mack in the observation room. She was surprised to find that the observation room overlooked a small operating room. There she saw Dr. Mack, working frantically to save a baby orangutan. After several minutes, the tiny ape started to breathe on its own, and Dr. Mack came out to greet Pam, "I thought we were going to lose her! Since we rescued her from a fire, we've been trying to bottle-feed her, but suddenly she stopped breathing. The nurse called me because I specialize in great apes. Now that I'm sure she'll be all right, how can I help you?" "I'm glad she's going to be okay," replied Pam, "I didn't know you were equipped for surgery." "That's why we need someone like you. We just added the hospital last winter. We had it built in the nursery because it had separate rooms to house sick or injured animals. We need someone who can handle frightened animals and comfort them while they wait for surgery and while they recover. Now, what was it you wanted to discuss?"
Pam replied, "I think you've answered all my questions. When can I start?"

Comprehension Questions
Inf-1 Who helped Pam get the job at the zoo?
Her biology teacher
Lit-2 Where did the zookeeper want Pam to work?
In the children's zoo
Inf-3 Why didn't Pam want to work in the baby animal zoo?
She didn't think it was an important job
Inf-4 What did Pam think would happen if she talked to the zoo's veterinarian?
She thought the veterinarian would convince the zookeeper to let her work with other animals
Lit-5 Why wasn't Dr. Mack in her office when Pam arrived at the zoo?

She had been called to help with an emergency
Lit-6 Where did the nurse ask Pam to wait for Dr. Mack?
In an observation room
Lit-7 What was wrong with the baby orangutan?
Accept either: she had stopped breathing or she had been in a fire
Lit-8 How did the zoo get the baby orangutan?
They rescued her from a fire
Lit-9 What was the job that Dr. Mack wanted Pam to do?
Handle the frightened animals and take care of them while they recovered from surgery
Inf-10 Why didn't Pam ever ask Dr. Mack to talk to the zookeeper?
After she learned about the job Dr. Mack wanted her to do, she realized it was important

472 Appendix D
Level 7, Silent Passage 360 Words
Background Question: What do people do in gymnastics?
Prompt: Read this passage to find out about what happens when Debbie and Kim do gymnastics in gym class.

Gym Class

Sometimes, Debbie wondered how she and Kim even tolerated each other, much less remained best friends. While Debbie was outgoing, Kim was quiet and shy. While Debbie was famous for her total lack of coordination, Kim was the most acrobatic person in the entire school.Yet the girls were inseparable, best friends since kindergarten. They were thrilled to find out they would be in gym class together. But as usual, they had opposite opinions about actually taking gym. Kim greeted the class enthusiastically, and Debbie had nothing but contempt for it. Today, they began the gymnastics unit, and Debbie wished she could crawl into a deep hole and disappear. Down the hall came the new gymnastics teacher, Ms. Bain. She announced that today they would be tumbling. Then Ms. Bain described some of the moves the girls would be doing, the forward roll, the backward roll, and the cartwheel. Ms. Bain asked if anyone could demonstrate any of the moves for the class. The whole class sang out in unison, "Kim!" Then Ms. Bain asked Kim if she had taken lessons, and she nodded shyly. When Ms. Bain asked if Kim had gotten far enough along to demonstrate any of these moves, the class giggled. Debbie realized that Kim was too modest to tell Ms. Bain the truth, so she spoke up proudly, "Ms. Bain, Kim is the state champion in gymnastics. She's a competitor at the national level."
Ms. Bain smiled at Kim and said, "Maybe you could give us a demonstration of the routine you performed at the state meet." With some encouragement from her classmates, Kim agreed to show the class part of her tumbling routine. As Debbie watched in admiration, Kim stepped onto the floor mat. As soon as she started to perform, her whole personality changed. Usually Kim was awkward in front of people, but when she stepped onto the gym floor, her body became elegance in motion. Kim's normal shyness disappeared, and she seemed to be an actress playing the part of a gymnast. Even Ms. Bain was taken aback! She applauded approvingly and said she hoped Kim would invite her to her next meet.

Comprehension Questions
Inf-1 Why didn't Debbie like gym class?
She is clumsy
Inf-2 Why did Kim like gym class?
Accept either: she is acrobatic or she likes gymnastics
Lit-3 When did Debbie and Kim become friends?
In kindergarten
Lit-4 What tumbling moves did the teacher want the girls to do?
Accept any: forward roll, backward roll, or cartwheel
Inf-5 Why did the girls in the gym class suggest that Kim demonstrate the tumbling moves?
Accept either: they knew she was good at gymnastics or she was state champion
Inf-6 Why did the girls giggle when Ms. Bain asked if Kim had enough experience to demonstrate for the class?
Accept either: they all knew that Kim was state champion or they knew that Kim had been taking gymnastics a long time
Lit-7 Why didn't Kim tell the teacher about her experience in gymnastics?
Accept either: she was too modest or she was too shy
Inf-8 Why did Kim need encouragement from her classmates before she would perform?
Accept any one: she was shy, she felt awkward in front of people, or she was modest
Inf-9 Why did Debbie admire Kim?
Accept any: she was coordinated, she was state champion, or she was good at gymnastics
Lit-10 What did Ms. Bain do when Kim finished her performance?
Accept either: she applauded, or she said she would like to go to Kim's next meet

Appendix D 475
Level 8, Silent Passage 298 Words
Background Question: What does a journalist do?
Prompt: Read this passage to find out how Kate becomes a special kind of journalist.

Kate Becomes a Journalist
Kate's greatest ambition is to be a journalist. Throughout her high school years, she has been a photographer on the school newspaper. Now she is the senior editor of the school paper, but her goal is to be a foreign correspondent. Kate is taking a class in photography and learning how to use pictures to tell a story. Kate would like to find a way to combine writing about international relations and photography, perhaps writing for a news magazine or for a TV news show but using her own photographs. Two years ago, Kate's history class took a trip to the southeastern states. She took her camera and photographed the eroded seacoasts. When Kate's pictures were published in the local newspaper, there were many letters to the editor, praising her work.
Last year, when Kate was a junior, her class went to Mexico. Kate took pictures of how the recent earthquake had devastated the entire region. When Kate showed her pictures to the editor of the town newspaper, he asked her to write an article to go with her pictures. He told Kate that she had a unique talent for capturing people's attention with a profound photograph. He said if she wrote an article go with the pictures, people would understand the message in the

photographs better. This time, public reaction was phenomenal! Kate could finally see a way to combine her ability to write with her interest in photography. Now in her senior year, Kate is deciding where to go to college. Kate's inclination is to go to a prestigious college in Washington, DC or New York. She wants to be near the ambassadors and diplomats. Kate has never abandoned her goal to be a foreign correspondent. She keeps that in mind through all her decisions.

Comprehension Questions
Lit-1 What does Kate want to be?
Accept either: a journalist or a foreign correspondent
Lit-2 How did Kate get started in journalism?
She is on the staff of the high school newspaper
Inf-3 How will Kate's experiences in high school help her accomplish her goals?
Accept any of these: she is the editor of the high school newspaper, she is the photographer for the high
school paper or she is taking a class to learn about photography
Inf-4 Why did Kate take her camera with her to Mexico?
So she could take pictures of earthquake damage
Lit-5 How did Kate get her pictures published the first time?
The local newspaper published them
Inf-6 How did the newspaper readers respond to Kate's pictures of the eroded seacoast?
They liked her work
Lit-7 Who first helped Kate get her work published?
The local newspaper editor
Inf-8 How did the local newspaper editor help Kate accomplish her goal?
He asked her to write about her pictures
Lit-9 Why did the newspaper editor suggest that Kate write an article to go with her pictures about the earthquake?
To help people understand the message of the photographs better
Inf-10 How will Kate decide which college to attend?
She will go where she can be near people who make political decisions

Artifact 6

Swimming Machines (ETS. (2009) p. 122 - 128)

Tunas, mackerels, and billfishes (marlins, sailfishes, and swordfish) swim continuously. Feeding, courtship, reproduction, and even “rest” are carried out while in constant motion. As a result, practically every aspect of the body form and function of these swimming “machines” is adapted to enhance their ability to swim. Many of the adaptations of these fishes serve to reduce water resistance (drag). Interestingly enough, several of these hydrodynamic adaptations resemble features designed to improve the aerodynamics of high-speed aircraft. Though human engineers are new to the game, tunas and their relatives evolved their “high-tech” designs long ago. Tunas, mackerels, and billfishes have made streamlining into an art form. Their bodies are sleek and compact. The body shapes of tunas, in fact, are nearly ideal from an engineering point of view. Most species lack scales over most of the body, making it smooth and slippery. The eyes lie flush with the body and do not protrude at all. They are also covered with a slick, transparent lid that reduces drag. The fins are stiff, smooth, and narrow, qualities that also help cut drag. When not in use, the fins are tucked into special grooves or depressions so that they lie flush with the body and do not break up its smooth contours. Airplanes retract their landing gear while in flight for the same reason. Tunas, mackerels, and billfishes have even more sophisticated adaptations than these to improve their hydrodynamics. The long bill of marlins, sailfishes, and swordfish probably helps them slip through the water. Many supersonic aircraft have a similar needle at the nose. Most tunas and billfishes have a series of keels and finlets near the tail. Although most of their scales have been lost, tunas and mackerels retain a patch of coarse scales near the head called the corselet. The keels, finlets, and corselet help direct the flow of water over the body surface in such as way as to reduce resistance (see the figure). Again, supersonic jets have similar features. Because they are always swimming, tunas simply have to open their mouths and water is forced in and over their gills. Accordingly, they have lost most of the muscles that other fishes use to suck in water and push it past the gills. In fact, tunas must swim to breathe. They must also keep swimming to keep from sinking, since most have largely or completely lost the swim bladder, the gas-filled sac that helps most other fish remain buoyant. One potential problem is that opening the mouth to breathe detracts from the streamlining of these fishes and tends to slow them down. Some species of tuna have specialized grooves in their tongue. It is thought that these grooves help to channel water through the mouth and out the gill slits, thereby reducing water resistance. There are adaptations that increase the amount of forward thrust as well as those that reduce drag. Again, these fishes are the envy of engineers. Their high, narrow tails with swept-back tips are almost perfectly adapted to provide propulsion with the least possible effort. Perhaps most important of all to these and other fast swimmers is their ability to sense and make use of swirls and eddies (circular currents) in the water. They can glide past eddies that would slow them down and then gain extra thrust by “pushing off” the eddies. Scientists and engineers are beginning to study this ability of fishes in the hope of designing more efficient propulsion systems for ships. The muscles of these fishes and the mechanism that maintains a warm body temperature are also highly efficient. A bluefin tuna in water of 7°C (45°F) can maintain a core temperature of over 25°C (77°F). This warm body temperature may help not only the muscles to work better, but also the brain and the eyes. The billfishes have gone one step further. They have evolved special “heaters” of modified muscle tissue that warm the eyes and brain, maintaining peak performance of these critical organs. Tunas, mackerels, and billfishes (marlins, sailfishes, and swordfish) swim continuously. Feeding, courtship, reproduction, and even “rest” are carried out while in constant motion. As a result, practically every aspect of the body form and function of these swimming “machines” is adapted to enhance their ability to swim.

1. The word enhance in the passage is closest in meaning to A. use B. improve C. counteract D. balance	2. The word they in the passage refers to qualities fins grooves depressions
3. Why does the author mention that Airplanes retract their landing gear while in flight? To show that air resistance and water resistance work differently from each other To argue that some fishes are better designed than airplanes are To provide evidence that airplane engineers have studied the design of fish bodies To demonstrate a similarity in design between certain fishes and airplanes	4. The word sophisticated in the passage is closest in meaning to complex amazing creative practical
5. According to paragraph 4, the long bills of marlins, sailfish, and swordfish probably help these fishes by increasing their ability to defend themselves allowing them to change direction easily increasing their ability to detect odors reducing water resistance as they swim	6. According to the passage, which of the following is one of the reasons that tunas are in constant motion? They lack a swim bladder. They need to suck in more water than other fishes do. They have large muscles for breathing. They cannot open their mouths unless they are in motion.
7. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect answer choices change the meaning in important ways or leave out essential information. These fishes often have a problem opening their mouths while swimming. The streamlining of these fishes prevents them from slowing down. The streamlining of these fishes tends to slow down their breathing. Opening the mouth to breathe can reduce the speed of these fishes.	8. The word channel in the passage is closest in meaning to reduce remove direct provide

9. According to the passage, one of the adaptations of fast-swimming fishes that might be used to improve the performance of ships is these fishes' ability to swim directly through eddies make efficient use of water currents cover great distances without stopping gain speed by forcing water past their gills	10. According to paragraph 9, which of the following is true of bluefin tunas? Their eyes and brain are more efficient than those of any other fish. Their body temperature can change greatly depending on the water temperature. They can swim in waters that are much colder than their own bodies. They have special muscle tissue that warms their eyes and brain.
11. Look at the four squares [7] that indicate where the following sentence can be added to the passage. Consequently, tunas do not need to suck in water. Where would the sentence best fit? Again, supersonic jets have similar features. Consequently, tunas do not need to suck in water. Because they are always swimming, tunas simply have to open their mouths and water is forced in and over their gills. 7 Accordingly, they have lost most of the muscles that other fishes use to suck in water and push it past the gills. 7 In fact, tunas must swim to breathe. 7 They must also keep swimming to keep from sinking, since most have largely or completely lost the swim bladder, the gas-filled sac that helps most other fish remain buoyant.	12. Directions: Complete the table below by indicating which features of fishes are associated in the passage with reducing water resistance and which are associated with increasing thrust. This question is worth 3 points. Reducing Water Resistance Increasing Thrust b b b b b Features of Fishes 1. The absence of scales from most of the body 2. The ability to take advantage of eddies 3. The ability to feed and reproduce while swimming 4. Eyes that do not protrude

Artifact 7

Animal Communication (Anestis, M. & Black, C. (2006) p. 127 - 129)

The fact that animals can communicate with each other is obvious to anyone who has ever watched a pack of dogs or a group of farm cats interact. But just how complex is animal communication? For instance, humans can communicate about concepts and about events in the past or in the future. Can animal communication come anywhere close to this level of complexity? Recent research has shed a great deal of light on this subject. A scientific conference on animal communication held in 2000 drew together animal behaviorists studying species ranging from parrots to whales. One of the more fascinating discoveries reported was that sperm whales, which have the largest brains on Earth, have a female dominated,egalitarian society similar to that of the African elephant. Elephants communicate with extremely low tones that can carry several kilometers. These tones, called infrasound because they are below the frequencies that humans can hear, can be as loud as a typical truck or tractor. Similarly, whales generate very loud clicks that carry enormous distances—perhaps hundreds of miles—through the water. Whales can hear nearly all of the frequencies that humans can, as well as many far higher than the human range. It appears whales are talking louder because of the increased noise in the oceans from ships—just as humans talk louder in a noisy bar than on a quiet beach. To study dolphins, another highly evolved mammal with a complex social life, scientists tow microphones behind boats to record the dolphins' conversations. It appears that each dolphin develops his or her own signature signal, which researcher Vincent Janik compares to an Internet screen name. Janik studied wild bottlenose dolphins off Moray Firth, Scotland, recording 1,719 whistles in all. Each dolphin he studied made a distinctive whistle that other dolphins would imitate in response, presumably to keep in touch. Janik employed human judges to determine if calls were identical, because computers are not yet up to the task.

The dolphins also use a distinctive sound when they find food, a low-pitched noise that sounds very much like the braying of a donkey. When one dolphin utters this call, other dolphins rush in to feed. Janik doesn't like to call all this communication "language," in deference to the complexity of human interaction, preferring to call it instead "a complex communication system," and says it resembles ancient humans' first steps toward language.

Dolphins are studied in this field because of their intelligence, as are chimpanzees, which some scientists consider to be our closest animal relatives. One study suggests that "food barks" uttered by chimpanzees don't only announce the discovery of food, but also its type and quality. Similarly, studies of monkeys have found that they utter cries that don't just warn of the presence of predators, but tell what kind of predator to look out for. Chimpanzees can even communicate silently. A researcher watched two chimpanzees cooperate with each other to catch and kill a small monkey without a sound, possibly because they were within vocal range of other members of their tribe and preferred not to share their lunch. Another study looked at chimpanzees' ability to read facial expressions. Chimpanzees were shown short videos depicting positive and negative emotional events, and then were presented with images of two facial expressions, one of which conveyed an emotional meaning similar to that in the video. Without prompting, some of the chimps associated negative facial expressions (such as screams and bared teeth) with scenes such as veterinary procedures and injection needles, and positive facial expressions with scenes of favorite foods and objects, indicating that they can, indeed, inherently read facial expressions without being specifically trained to do so. Other research presented at the conference indicated that even sea lions can reason via transitivity, that is, by logic analogous to "if A equals B, and B equals C, then A equals C." For instance, in the wild, male sea lions will fight a male they have seen beaten by another that they, in turn, have beaten. Evolving research continues to show that our animal cousins are more sophisticated communicators, and have more sophisticated societies, than we normally give them credit for. So keep an eye on your pet: he may be trying to tell you something.

17. The phrase “this level of complexity” (line 9) refers to the process of (A) studying the communication of a wide range of animals (B) maintaining animals in groups, such as dog packs (C) conveying abstract information through language (D) drawing together researchers from many different fields (E) remembering events from the distant past	18. If the discovery mentioned in lines 15–19 (“One of the...African elephant”) was relevant to the conference at which it was reported, then it can be inferred that animal behaviorists (A) believe that human societies should be as egalitarian as other mammalian societies (B) believe that sperm whales have more sophisticated communication skills than do African elephants (C) have long assumed that language skill increases in proportion to brain size (D) consider females to be more communicative than males in most animal societies (E) regard systems of social organization to be relevant to the study of animal communication
19. The passage indicates that elephants are similar to sperm whales in terms of their I. ability to hear lower frequencies than those humans can perceive II. complex social organization III. ability to communicate over long distances (A) II only (B) I and II only (C) II and III only (D) I and III only (E) I, II, and III	20. The statement in lines 30–33 (“It appears whales...on a quiet beach”) suggests that whales (A) are often disoriented by the noise coming from ships (B) do not emit such powerful sounds when they are far from shipping lanes (C) are occasionally fooled into believing that the sounds from ships are actually coming from other whales (D) emit high-frequency sounds in order to avoid being perceived by humans and other predators (E) tend to spend more time near beaches than they do in very deep waters
21. The words “appears” (line 37) and “presumably” (line 45) serve primarily to (A) indicate that some conjecture has been applied to the results of Janik’s research (B) suggest that Janik’s research method was not very sophisticated (C) refute the widely held assumption that dolphins have an intricate system of communication (D) cast doubt on the scientific validity of comparing dolphins to other mammals (E) imply that the number of distinct dolphin whistles that Janik distinguished may not be as high as reported	22. The “task” in line 48 refers to the process of (A) comparing underwater sounds (B) counting the number of whistles (C) determining why dolphins make certain noises (D) recording sounds in the ocean (E) communicating with dolphins

23. The study described in lines 77–93 was intended primarily to examine the ability of chimpanzees to (A) distinguish between human faces and chimpanzee faces (B) communicate effectively with other chimpanzees through emotional sounds (C) recognize relevant objects like their favorite foods (D) associate perceived facial expressions with emotions (E) convey emotions without sound	24. Which of the following, if true, would most effectively undermine the author's claim that a sea lion can reason "via transitivity" (lines 95–96)? (A) The sea lion sometimes fights members of his own family. (B) The sea lion fights other sea lions only to assert social dominance. (C) The sea lion only fights other sea lions that he has seen defeated by others. (D) The sea lion often fights others that he has seen defeat those sea lions that have also defeated him. (E) The sea lion refuses to fight any other sea lions.

Artifact 8

Aggression (ETS. (2009) p. 90 - 95)

When one animal attacks another, it engages in the most obvious example of aggressive behavior. Psychologists have adopted several approaches to understanding aggressive behavior in people.

The Biological Approach. Numerous biological structures and chemicals appear to be involved in aggression. One is the hypothalamus, a region of the brain. In response to certain stimuli, many animals show instinctive aggressive reactions. The hypothalamus appears to be involved in this inborn reaction pattern: electrical stimulation of part of the hypothalamus triggers stereotypical aggressive behaviors in many animals. In people, however, whose brains are more complex, other brain structures apparently moderate possible instincts. An offshoot of the biological approach called sociobiology suggests that aggression is natural and even desirable for people. Sociobiology views much social behavior, including aggressive behavior, as genetically determined. Consider Darwin's theory of evolution. Darwin held that many more individuals are produced than can find food and survive into adulthood. A struggle for survival follows. Those individuals who possess characteristics that provide them with an advantage in the struggle for existence are more likely to survive and contribute their genes to the next generation.

In many species, such characteristics include aggressiveness. Because aggressive individuals are more likely to survive and reproduce, whatever genes are linked to aggressive behavior are more likely to be transmitted to subsequent generations.

The sociobiological view has been attacked on numerous grounds. One is that people's capacity to outwit other species, not their aggressiveness, appears to be the dominant factor in human survival. Another is that there is too much variation among people to believe that they are dominated by, or at the mercy of, aggressive impulses.

The Psychodynamic Approach. Theorists adopting the psychodynamic approach hold that inner conflicts are crucial for understanding human behavior, including aggression. Sigmund Freud, for example, believed that aggressive impulses are inevitable reactions to the frustrations of daily life. Children normally desire to vent aggressive impulses on other people, including their parents, because even the most attentive parents cannot gratify all of their demands immediately.

Yet children, also fearing their parents' punishment and the loss of parental love, come to repress most aggressive impulses. The Freudian perspective, in a sense, sees us as "steam engines." By holding in rather than venting "steam," we set the stage for future explosions. Pent-up aggressive impulses demand outlets. They may be expressed toward parents in indirect ways such as destroying furniture, or they may be expressed toward strangers later in life.

According to psychodynamic theory, the best ways to prevent harmful aggression may be to encourage less harmful aggression. In the steam-engine analogy, verbal aggression may vent some of the aggressive steam. So might cheering on one's favorite sports team. Psychoanalysts, therapists adopting a psychodynamic approach, refer to the venting of aggressive impulses as "catharsis."1 Catharsis is theorized to be a safety valve. But research findings on the usefulness of catharsis are mixed. Some studies suggest that catharsis leads to reductions in tension and a lowered likelihood of future aggression. Other studies, however, suggest that letting some steam escape actually encourages more aggression later on.

The Cognitive Approach. Cognitive psychologists assert that our behavior is influenced by our values, by the ways in which we interpret our situations, and by choice. For example, people who believe that aggression is necessary and justified—as during wartime—are likely to act aggressively, whereas people who believe that a particular war or act of aggression is unjust, or who think that aggression is never justified, are less likely to behave aggressively.

One cognitive theory suggests that aggravating and painful events trigger unpleasant feelings. These feelings, in turn, can lead to aggressive action, but not automatically. Cognitive factors intervene. People decide whether they will act aggressively or not on the basis of factors such as their experiences with aggression and their interpretation of other people's motives. Supporting evidence comes from research showing that aggressive people often distort other people's motives. For example, they assume that other people mean them harm when they do not.

1 Catharsis: In psychodynamic theory, the purging of strong emotions or the relieving of tensions.

1. According to paragraph 2, what evidence indicates that aggression in animals is related to the hypothalamus? A. Some aggressive animal species have a highly developed hypothalamus. B. Electrical stimulation of the hypothalamus delays animals' inborn reaction patterns. C. Animals behaving aggressively show increased activity in the hypothalamus. D. Animals who lack a hypothalamus display few aggressive tendencies.	2. According to Darwin's theory of evolution, members of a species are forced to struggle for survival because A. not all individuals are skilled in finding food B. individuals try to defend their young against attackers C. many more individuals are born than can survive until the age of reproduction D. individuals with certain genes are more likely to reach adulthood
3. The word inevitable in the passage is closest in meaning to A. unavoidable B. regrettable C. controllable D. unsuitable	4. The word gratify in the passage is closest in meaning to A. identify B. modify C. satisfy D. simplify
5. The word they in the passage refers to A. future explosions B. pent-up aggressive impulses C. outlets D. indirect ways	6. According to paragraph 5, Freud believed that children experience conflict between a desire to vent aggression on their parents and A. a frustration that their parents do not give them everything they want B. a fear that their parents will punish them and stop loving them C. a desire to take care of their parents D. a desire to vent aggression on other family members
7. Freud describes people as steam engines in order to make the point that people A. deliberately build up their aggression to make themselves stronger B. usually release aggression in explosive ways C. must vent their aggression to prevent it from building up D. typically lose their aggression if they do not express it	8. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect answer choices change the meaning in important ways or leave out essential information. A. People who believe that they are fighting a just war act aggressively while those who believe that they are fighting an unjust war do not. B. People who believe that aggression is necessary and justified are more likely to act aggressively than those who believe differently. C. People who normally do not believe that aggression is necessary and justified may act aggressively during wartime. D. People who believe that aggression is necessary and justified do not necessarily act aggressively during wartime.

9. According to the cognitive approach described in paragraphs 7 and 8, all of the following may influence the decision whether to act aggressively EXCEPT a person's
A. moral values
B. previous experiences with aggression
C. instinct to avoid aggression
D. beliefs about other people's intentions

10. The word distort in the passage is closest in meaning to
A. mistrust
B. misinterpret
C. criticize
D. resent

11. Look at the four squares [7] that indicate where the following sentence can be added to the passage. According to Freud, however, impulses that have been repressed continue to exist and demand expression.
Where would the sentence best fit?

The Psychodynamic Approach. Theorists adopting the psychodynamic approach hold that inner conflicts are crucial for understanding human behavior, including aggression. Sigmund Freud, for example, believed that aggressive impulses are inevitable reactions to the frustrations of daily life. Children normally desire to vent aggressive impulses on other people, including their parents, because even the most attentive parents cannot gratify all of their demands immediately. 7 Yet children, also fearing their parents' punishment and the loss of parental love, come to repress most aggressive impulses. 7 The Freudian perspective, in a sense, sees us as "steam engines." 7 By holding in rather than venting "steam," we set the stage for future explosions. 7 Pent-up aggressive impulses demand outlets. They may be expressed toward parents in indirect ways

12. Directions: Complete the table below by matching five of the six answer choices with the approach to aggression that they exemplify. This question is worth 3 points.

Approach to understand aggression	Claims
Biological Approach (1)	
Psychodynamic Approach (1)	
(2)	
Cognitive Approach (1)	
(2)	

Answer Choices
1. Aggressive impulses toward people are sometimes expressed in indirect ways.
2. Aggressiveness is often useful for individuals in the struggle for survival.
3. Aggressive behavior may involve a misunderstanding of other people's intentions.
4. The need to express aggressive impulses declines with age.
5. Acting aggressively is the result of a choice influenced by a person's values and beliefs.
6. Repressing aggressive impulses can result in aggressive behavior.

Artifact 9
Development of mathematics through history. (Anestis, M. & Black, C. (2006) p. 135 - 137)

Metaphysics and mathematics have crossed paths many times in history, and at various Line angles and energies—often, but not exclusively, to their mutual benefit. In ancient civilizations, both arts were remote to commoners, and were often practiced together in sacred temples. But today their spheres have become separate, one dedicated to persuading human subjects, the other to revealing truths.

The Babylonians were among the first to learn the instrumental value of mathematics. They used it to calculate the quantities of bricks required to construct edifices, and to predict the seasons and other astronomical occurrences. But because they regarded the celestial bodies as divine, mathematics came to be regarded also as an instrument of worship. Likewise, the Egyptians employed geometrical methods to construct the pyramids and align them with the sacred heavens. Reciprocally, the gods could use mathematics to communicate with believers, confounding them to set their minds properly, or so thought Plato in interpreting the oracle's demand that the Delians double the volume of their altar, a task beyond Greek mathematicians. The Neoplatonist philosopher Proclus likely had this sacred instrumentality in mind when he wrote that mathematics "reminds one of the invisible form of the soul...[and] awakens the mind and purifies the intellect."

Even in the Middle Ages, numbers could represent mystical truths. The number 3 represented the Holy Trinity, and the infinitude of the counting numbers signified the infinitudes of God. Even as late as the 20th century, Christian mathematician Gregor Cantor believed that he could offer Christianity theology "the true theory of the infinite." This metaphor, however, could reach absurd levels when applied too literally, as when the number π, the ratio of the circumference of a circle to its diameter, was taken by Biblical literalists to be precisely 3, in affirmation of the Holy Trinity. Ignorant of mathematical analysis, they took their evidence directly from the book of Kings, which stated that a circular cauldron in the temple of Solomon measured ten cubits across and thirty cubits around. Yet not even an infinite power can construct a circle ten cubits across that can be encircled with fewer than 31.4 cubits, a fact proven centuries before the dawn of Christianity.

This power of deduction to prove truths beyond the whims of the gods has led some to posit that mathematics itself is a mystical power. The followers of Pythagoras, the mathematekoi, took this manner of thinking to the extreme. Their creed was "all is number," and they regarded the pursuit of mathematical proof to be the pursuit of the divine. Mathematics acquired its own abstract plane beyond the physical world. To the mathematekoi, the order of nature reflected the rules of mathematics, not divine caprice. The Pythagoreans were a conspicuously disciplined sect, eschewing meat and animal skin clothing, and seeking purity in all things. Yet even among the mathematekoi, as often happens when humans identify too closely with the divine, unreasoning righteousness ascended. Every new proof was celebrated, with animal sacrifices, as a confirmation of ideological purity. Yet seeming transgressions were punished with violence. When Hipposus dared to prove that the length of the hypotenuse of a unitary isosceles right triangle cannot be expressed as the ratio of whole numbers, his fellow cult members threw him from a ship and drowned him. His proof refuted their religious precept that all of reality can be described with whole numbers and their ratios.

As Hipposus' hypotenuse revealed, either mathematical logic or religious ideology would have to yield, and history has favored mathematics. Hipposus has been vindicated. The power of mathematical deduction, properly implemented, is absolute, unlike the more human philosophies. Truth is not revealed; it is deduced. Nature is not controlled by the capricious and obscure will of the gods, but rather by reliable and knowable mathematical laws. Although the explorers occasionally stumble in their quest for understanding, their errors are due to human weaknesses, not to the weakness of logic. The inexorable march of reason toward the true understanding.

7. Which of the following is the best title for this passage? (A) Number and Religion in the Pythagorean Cult (B) The Religious Beliefs of Great Mathematicians (C) The Contribution of Geometry to Ancient Astronomy (D) The Historical Relationship between Mathematics and Metaphysics (E) The Intellectual Legacy of the Babylonians	8. In line 3, the phrase “angles and energies” refers to (A) the motions of celestial bodies (B) the rigidity of mathematical laws (C) the manner in which disciplines have intersected (D) the various interests of historians (E) the mystical nature of some religions
9. The phrase “but not exclusively” (lines 3–4) suggests that (A) some historians do not focus only on the development of mathematical and scientific thought (B) the relationship between mathematics and religion has not always been constructive (C) some people object to the application of mathematics to religious questions (D) many mathematical facts can easily coexist with religious precepts (E) some mathematical and religious ideas are beyond the understanding of the average person	10. The statement in lines 7–10 (“But today... revealing truths”) suggests that, over time, religion and mathematics have become more (A) independent (B) mystical (C) interrelated (D) difficult to understand (E) popular
11. In line 8, the word “spheres” most nearly means (A) social groups (B) perfect forms (C) domains of influence (D) worldly objects (E) mathematical laws	12. The word “Reciprocally” (line 23) is intended to convey the fact that (A) mathematics was thought to be a tool for both humans and the gods (B) Plato was a mathematician as well as a moral philosopher (C) the Egyptians contributed a great deal to Greek mathematics (D) priests and mathematicians often posed problems to one another (E) mathematicians were often employed in the building of temples
13. Plato is mentioned in line 26 because he (A) solved a mathematical problem that had confused the oracle (B) helped the Delians to construct an altar (C) presented the Delians with knowledge that helped them to interpret a prophecy (D) proclaimed that mathematical knowledge was independent of religious knowledge (E) suggested that the oracle’s demand was intended to mystify the Delians	14. The statement in lines 55–59 (“Yet not even...dawn of Christianity”) asserts the fact that (A) a proven mathematical fact cannot be contradicted (B) religious laws are similar to mathematical laws (C) ancient construction methods were inadequate (D) many mathematical discoveries were made after the dawn of Christianity (E) geometry was studied in great depth in the Christian era

15. The “manner of thinking” mentioned in lines 65 includes the belief that I. the primary purpose of mathematics is to solve worldly problems II. mathematical laws are not arbitrary III. mathematics has mystical power (A) III only (B) I and II only (C) I and III only (D) II and III only (E) I, II, and III	16. In line 70, “plane” most nearly means (A) geometric surface (B) method of conveyance (C) level of existence (D) lack of stability (E) angle of intersection
17. In line 80, the statement “righteousness ascended” means that (A) a mathematical theorem was proven (B) historians acquired a biased point of view (C) the Pythagoreans became ideologically intolerant (D) many people rejected the cult of Pythagoras for religious reasons (E) the cult of Pythagoras became politically divided	18. The final paragraph suggests that the “precept” mentioned in line 90 was (A) factually incorrect (B) proven only well after it was first declared (C) later rejected by the Pythagoreans (D) the foundation of many later discoveries (E) obvious to many other Greek thinkers
19. The “explorers” (line 104) are those who (A) seek mystical experiences (B) investigate historical claims (C) attempt to unify religion and mathematics (D) endeavor to explain nature through reason (E) adhere to the religious restrictions of the Pythagoreans	

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