

Evaluating the Appropriateness of the SAT® I: Reasoning Test for Seventh and Eighth Graders

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The SAT® I: Reasoning Test is designed for use with juniors and seniors in high school to assist in the college admission process. Of the nearly three million students who took the SAT in 1998-99, more than 130,000 were seventh and eighth graders (more than 110,000 in 1997-98). The majority of these middle school students are invited to take the SAT as part of a regional talent identification program (TIP). They represent an atypical sample of middle school students, having scored at or above the 95 percentile on a standardized achievement test given in their school districts.

TIP is designed to identify, challenge, guide, and reward young people with exceptional academic talent. TIP offers continued contact and support throughout their high school years, acts as a resource for the middle schools serving these students, and provides opportunities for further growth for the students (for example, summer institutes and annual seminars). Most TIPs began in the early 1980s, building on Julian Stanley's work with gifted youth at Johns Hopkins University in the early 1970s. The six major TIPs are the Center for Talented Youth (CTY) at Johns Hopkins, Duke Talent Search Program, Midwest Talent Search at Northwestern University, Rocky Mountain Talent Search at the University of Denver, Iowa Talent Search at Iowa State University, and UCI Talent Search at the University of California: Irvine.

Students typically qualify for participation by scoring at the 95 percentile in verbal and/or math on a nationally normed and age-appropriate standardized test (for example CAT, MAT, CTBS, etc.). The individual TIP may have additional requirements, such as recommendations. Because the scores of these stu-

dents tend to cluster at the top of the score scale on the age-appropriate tests used to qualify for participation in the TIPs, several programs began to explore the use of the SAT for screening purposes in the mid-1980s. In addition to challenging such students, the SAT "spreads out" their scores so the most able students can be identified.

Middle school students taking the SAT are offered two options. First, they can take the paper-based SAT during the December and January administrations (most take the January administration). Second, a computer-delivered version is available. The computerized SAT was first offered in 1996-97 as part of a joint project with CTY. Its use is restricted to students in the eighth grade or below, and the number of students who choose the computerized version is relatively low (approximately 5,000-6,000 per year). Only five of the TIPs accept scores from the computerized SAT (CTY, Midwest, Iowa, Rocky Mountain, and UCI), and CTY participants account for over 95 percent of the testing volume. Scores from either version of the SAT are reported only to the TIPs, not to colleges, and are purged from ETS files at the completion of the testing year.

The standard SAT score report is issued to each student following the testing. Interpretive information is based on the same information that is provided to high school test-takers. For example, both national and state percentiles are based on the college-bound senior cohort. The individual programs provide feedback to their participants based on the students who applied to the specific TIP. However, information on the demographics and performance of the total group of students is dated (Wilder, Casserly, and Burton, 1988) and has not been routinely examined. Several problems have contributed to the inability to evaluate this nontraditional testing group. First, middle school students do not routinely complete the demographic information that other test-takers complete prior to taking

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the SAT. Second, it has been difficult to retrieve data once it is purged from the SAT Program files. As a part of a special project, middle school students who tested in 1997-98 and 1998-99 were extracted from SAT Program files prior to the data being purged.

SAMPLE

All students who took the SAT during the 1997-98 and 1998-99 testing years and who indicated their current grade level as “eighth grade” or “not yet in eighth grade” were included in the sample. A total of 242,897 students were used in the analysis; 110,151 from 1997-98 and 132,746 from 1998-99. Table 1 displays the number of students by gender, grade level, and ethnicity/racial group. Data on grade, gender, and ethnicity were obtained from background information completed at the time of test registration. However, TIPs advised students that ethnicity and other background information (for example, course experience and school activities) were optional and did not need to be completed. As a result, only a small percentage of students provided this information and, therefore, no analysis by ethnicity/race was performed.

RESULTS

Demographics. As shown in Figure 1, slightly more males than females take the SAT as middle school students (males about 52 percent and females

about 48 percent for both years). This proportion is different from that of the college-bound senior cohort, where female test-takers are in the majority (about 54 percent female and 46 percent male) (College Board, 1998, 1999). This discrepancy could be the result of a number of things, including a higher proportion of males are believed to fall into the “gifted” category and thus more males would qualify to participate in talent identification programs, males might outperform females on standard school-based achievement tests, middle schools might distribute TIP materials disproportionately among males and females, or a higher proportion of males and their families may elect to participate in the talent identification process.

Figure 2 provides information on grade level for the 1997-98 and 1998-99 testing years. As indicated, the vast majority of students chose to participate in a TIP during the seventh grade. Some seventh grade test-takers chose to repeat the SAT if they failed to gain entry into the program the first time. The number of repeat test-takers represented by the eighth graders is unknown.

Test Performance. Figures 3 and 4 show the distribution of verbal and math scores for the combined group of seventh and eighth graders and the college-bound senior cohort (College Board, 1998, 1999). (The college-bound cohort is comprised of all test-takers who indicated a particular year of graduation. That is, students who graduated in 1998 make up the 1997-98 cohort and those who graduated in

TABLE 1. NUMBER OF MIDDLE SCHOOL TEST-TAKERS, BY TESTING YEAR

	1997-98	1998-99
Total	110,151	132,746
Gender		
Male	57,235	69,602
Female	52,886	63,137
Grade Level		
Seventh	85,988	100,119
Eighth	24,163	32,627
Ethnicity		
American Indian	98	110
Asian American	1,729	1,997
African American/Black	444	502
Hispanic/Latino	286	323
White	8,088	9,342
Other	348	373

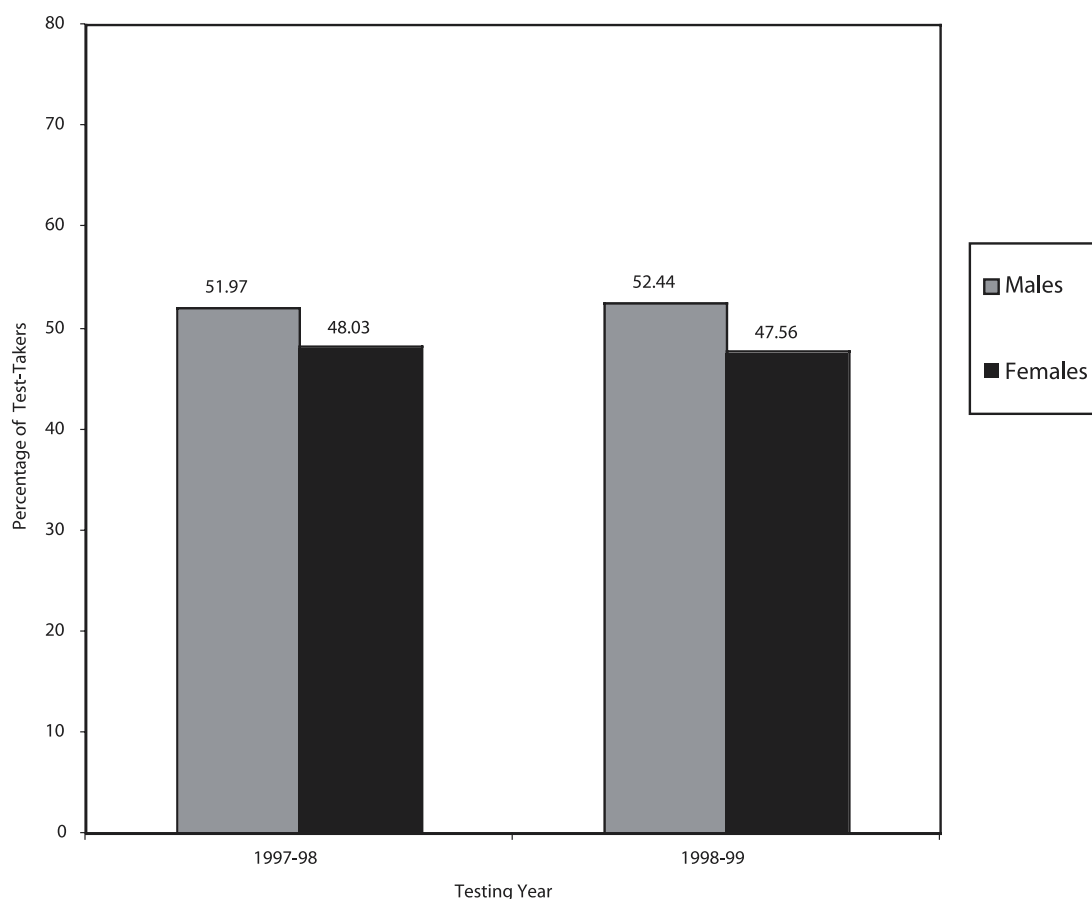


Figure 1. SAT I MIDDLE SCHOOL TEST-TAKERS BY GENDER.

1999 make up the 1998-99 cohort.)

A number of things are apparent from these figures. The verbal and math performance of the seventh and eighth grade groups is highly similar for both years. (This is also true for the college-bound cohort; however, similarity between years is expected for the cohort.) The verbal and math performance of the seventh and eighth graders also covers the entire range of the College Board 200 to 800 scale for both years. Only a small percentage of students (about 4 percent for verbal and 2 percent for math both years) fall in the lower score ranges (200–290); this is comparable to that for the college-bound cohort, with about 3 percent falling in the lower score ranges for both verbal and math (both years). However, a much smaller percentage of students are found for the seventh and eighth grade group compared to the college-bound cohort at the top end of the scale (650–800): for verbal, less than 2 percent of middle school students, compared to 11 percent for the college-bound cohort (both years); for math, less than 3 percent of middle

school students, compared to 13 percent for the college-bound cohort (both years).

Although the performance of the seventh and eighth graders covers the entire distribution, the majority of middle school students fell within a narrower range of scores. For example, approximately 76 percent (1997-98) and 77 percent (1998-99) had verbal scores falling between 350 and 540, while 78 percent (1997-98) and 76 percent (1998-99) had math scores falling between 350 and 540. For the college-bound cohort, approximately 57 percent of students fell within that range on verbal and 55 percent on math.

Figures 5 and 6 provide information on mean scores by total group and by grade level. Not surprisingly, the college-bound cohort mean is higher than the seventh and eighth grade mean for all tests (both years). For 1997-98, the seventh and eighth grade verbal mean was 450 (SD = 86) and the college-bound cohort mean was 505 (SD = 111); the math mean was 466 (SD = 84) for seventh and eighth graders and 512 (SD = 112) for the college-bound cohort. For 1998-99, the seventh and eighth grade

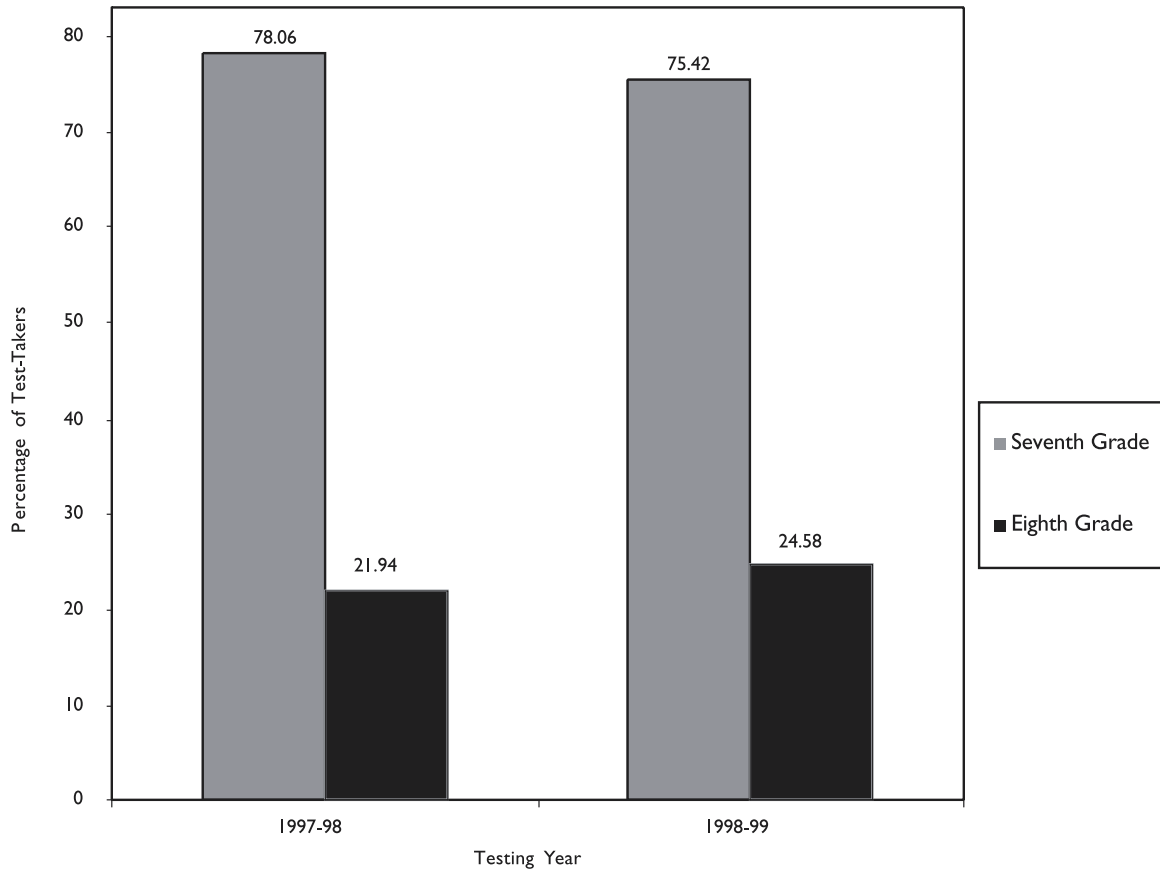


Figure 2. SAT I MIDDLE SCHOOL TEST-TAKERS BY GRADE LEVEL.

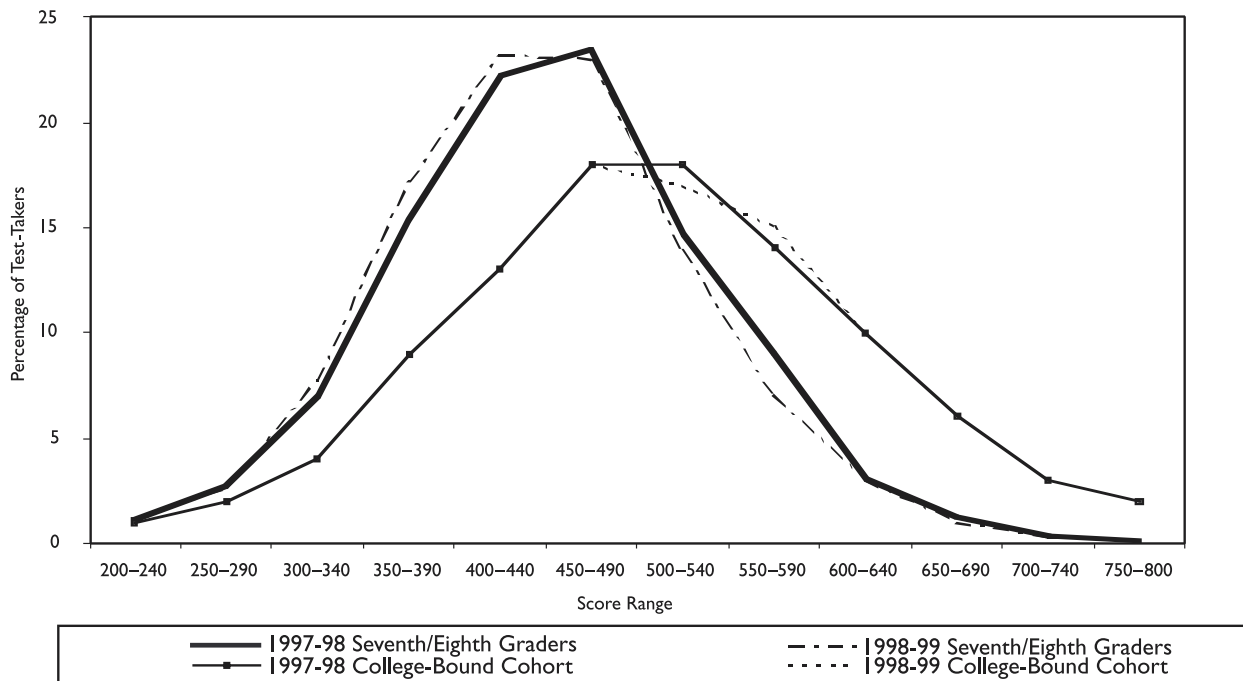


Figure 3. DISTRIBUTION OF SAT I VERBAL SCORES.

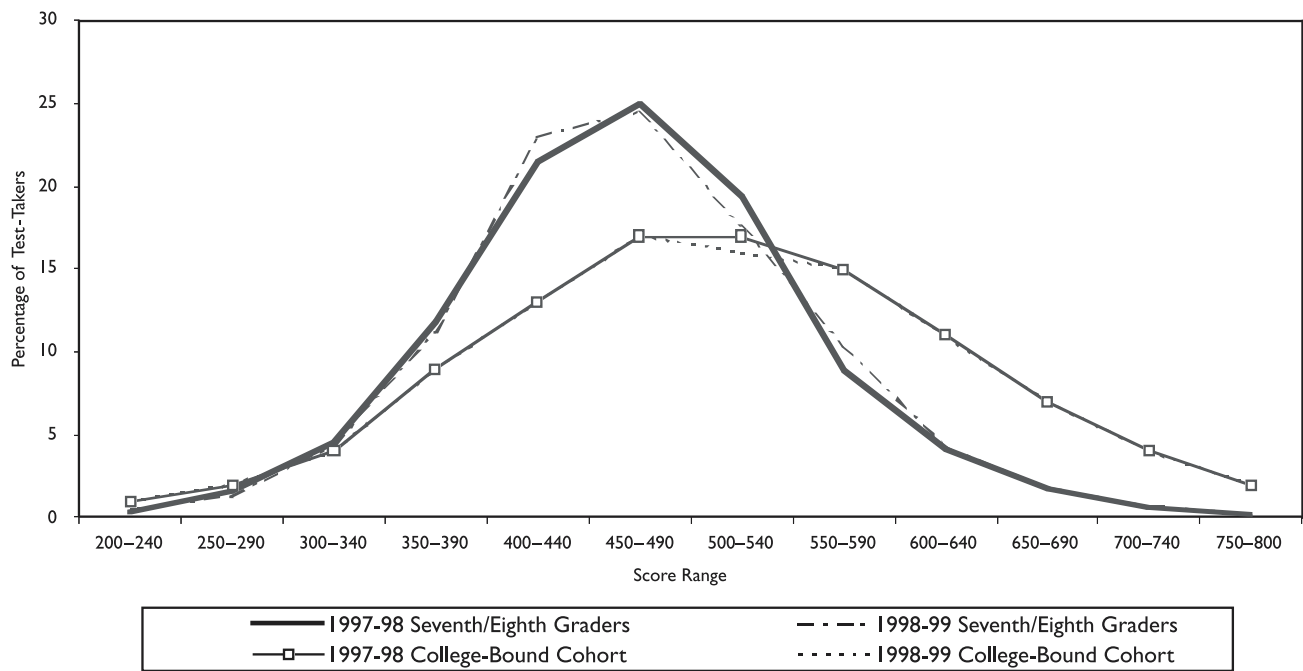


Figure 4. DISTRIBUTION OF SAT I MATH SCORES.

verbal mean was 444 (SD = 86) and the college-bound cohort mean was 505 (SD = 111); the math mean was 470 (SD = 85) for the seventh and eighth graders and 511 (SD = 114) for the college-bound cohort. The seventh and eighth grade test-takers are clearly a more homogeneous group.

Figures 5 and 6 also indicate that the eighth grade test-takers outperformed the seventh graders on both verbal and math. For verbal, the mean scores for the seventh and eighth graders were

quite different (57–60 scaled points); for math, the differences were slightly larger (60–62 scaled points). The differences between the eighth graders and the college-bound cohort are much smaller for verbal (11–15 scaled points). For math, the eighth graders *outperformed* the college-bound cohort: in 1997-98 the eighth grade mean was one point *above* the college-bound cohort mean and in 1998-99 the eighth grade mean was five points *above* the college-bound cohort mean. This undoubtedly

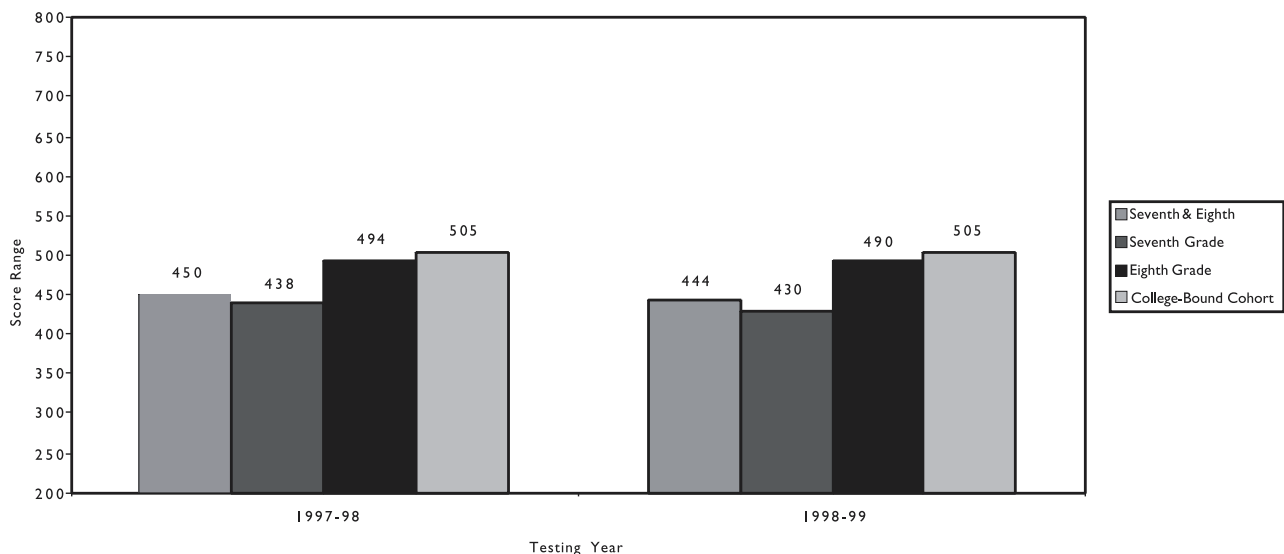


Figure 5. MEAN SAT I VERBAL SCORES.

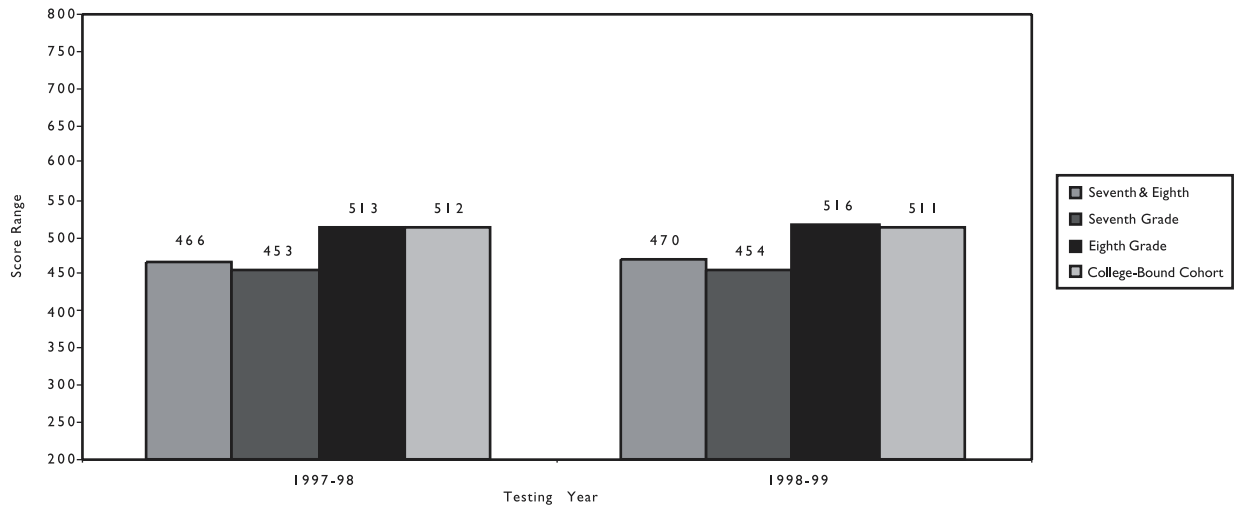


Figure 6. MEAN SAT I MATH SCORES.

reflects the high ability level, especially in mathematics, of the relatively small number of eighth graders who chose to take the SAT.

SUMMARY

The SAT is designed to measure the verbal and math reasoning abilities of high school juniors and seniors. These abilities develop over a long period of time and are independent of a particular school curriculum. The performance of seventh and eighth graders on the SAT is amazing, especially when considering their age. Although these students do, on average, perform slightly less well than students belonging to the group for whom the test is designed, many of them score as well as, or better than, many high school students. The use of the SAT by talent identification programs does not seem to penalize students who choose to take the test. For many talent identification programs, the SAT provides an additional mechanism to identify, guide, and reward young students who have exceptional academic talent.

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