Preparing for College Entrance Exams

Bronxville High School
January 15th, 2020
Seminar Agenda

1) SAT Subject Tests discussion

2) SAT & ACT discussion
Portfolio Elements by Grade

- 10th Grade: (Corresponding AP) Subject Test
- 11th Grade: SAT/ACT, other Subject Tests
- 12th Grade: SAT/ACT, other Subject Tests
SAT Subject Tests
<table>
<thead>
<tr>
<th>Subject Test Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
</tr>
<tr>
<td>Chemistry</td>
</tr>
<tr>
<td>Physics</td>
</tr>
<tr>
<td>Math Level 1</td>
</tr>
<tr>
<td>Math Level 2</td>
</tr>
<tr>
<td>World History</td>
</tr>
<tr>
<td>US History</td>
</tr>
<tr>
<td>Literature</td>
</tr>
<tr>
<td>Spanish</td>
</tr>
<tr>
<td>Spanish with Listening</td>
</tr>
<tr>
<td>French</td>
</tr>
<tr>
<td>French with Listening</td>
</tr>
<tr>
<td>German</td>
</tr>
<tr>
<td>German with Listening</td>
</tr>
<tr>
<td>Italian</td>
</tr>
<tr>
<td>Modern Hebrew</td>
</tr>
<tr>
<td>Latin</td>
</tr>
<tr>
<td>Japanese</td>
</tr>
<tr>
<td>Japanese with Listening</td>
</tr>
<tr>
<td>Korean</td>
</tr>
<tr>
<td>Korean with Listening</td>
</tr>
<tr>
<td>Chinese</td>
</tr>
<tr>
<td>Chinese with Listening</td>
</tr>
</tbody>
</table>
Subject Test Date Options

<table>
<thead>
<tr>
<th>Aug</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td></td>
<td></td>
<td>*</td>
<td>SAT</td>
<td>SAT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Take up to three different tests per date.
- Check when your test is offered.
- Reserve your seat well in advance.
- Consider testing away from familiar faces.
- Consider your other commitments: school course finals, sports, performances, & vacations.
Subject Test Facts & Goals

- Each test is 60 minutes.
- Wrong answer penalty (rewards educated guessing & process of elimination).
- "Scaled Score" range: 200-800.
- Understand grading percentiles!
  - 800 on Literature: 99th Percentile
  - 800 on Biology M: 94th Percentile
  - 800 on Math II: 78th Percentile
  - 800 on Chinese: 61st Percentile
What does test prep bring to the mix?

- Not all content for the tests is presented in your class.
- Strategy (timing).
- Strategy (questions).
- Different from taking school tests.
- Confidence.
ACT vs. SAT
SAT/ACT Test Date Options

• Start planning in the spring/summer of 10th grade.
• Initial real test may be as early as 11th fall/winter.
• Second real test usually takes place in spring 11th grade or summer/fall 12th grade.
• Can take these tests as late fall/winter of 12th.
• ACT change: starting September 2020, students who have taken the ACT once may be able to take one section at a time.

<table>
<thead>
<tr>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
<td>SAT</td>
</tr>
<tr>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT</td>
<td>ACT*</td>
</tr>
</tbody>
</table>
How to Decide?

• You don’t have to commit to one test right away.

• Take an ACT mock and an SAT mock.
  – BHS Fundraiser Dates:
    • March 29 - ACT
    • April 19 - SAT

• Examine scores and student’s learning profile – let’s talk about it.
ACT vs. SAT: Similarities

• 4 sections + optional essay
• Structure and content of ACT English and SAT Writing & Language sections
• Types of passages and question types on ACT Reading and SAT Reading sections
• Data/graph/chart interpretation questions in ACT Science and throughout the SAT
• No wrong answer penalty
ACT vs. SAT: Differences

• More time per question on SAT for all sections
• Deeper math mastery required for SAT Math
• No calculator allowed on one section of SAT Math
• Data/graph/chart interpretation concentrated into one section: ACT Science
• Command of evidence question type on SAT Reading
## Minutes Per Question on ACT vs. SAT

<table>
<thead>
<tr>
<th>Section</th>
<th>ACT</th>
<th>SAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>0.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Math</td>
<td>1.0</td>
<td>1.25 (No Calc) 1.45 (Calculator)</td>
</tr>
<tr>
<td>Reading</td>
<td>0.88</td>
<td>1.25</td>
</tr>
<tr>
<td>Science</td>
<td>0.88</td>
<td>N/A</td>
</tr>
</tbody>
</table>
The ACT: Scoring

<table>
<thead>
<tr>
<th>Section</th>
<th>Scaled Score Range</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1-36</td>
<td>Will generally lose 1 point for every 2-3 questions you miss except at very top end of the scale.</td>
</tr>
<tr>
<td>Math</td>
<td>1-36</td>
<td>Will generally lose 1 point for every 2-3 questions you miss except at very top end of the scale.</td>
</tr>
<tr>
<td>Reading</td>
<td>1-36</td>
<td>Will generally lose about 1 point for every question you miss.</td>
</tr>
<tr>
<td>Science</td>
<td>1-36</td>
<td>Very steep scale. In some science sections, the first question you miss drops you to a 34 or 33.</td>
</tr>
<tr>
<td>Composite</td>
<td>1-36</td>
<td>Average of the four section scores.</td>
</tr>
</tbody>
</table>

- No wrong answer penalty
- **Essay:** Not part of overall score (graded separately). Graded on scale of 2-12.
# The SAT: Scoring

<table>
<thead>
<tr>
<th>Section</th>
<th>Included Subsections</th>
<th>Scaled Score Range</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence-Based Reading and Writing</td>
<td>Reading Writing and Language</td>
<td>200-800</td>
<td>Will generally lose 10 points for every 1-2 questions you miss.</td>
</tr>
<tr>
<td>Math</td>
<td>No Calculator Calculator</td>
<td>200-800</td>
<td>Will generally lose 10 points for every question you miss.</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>400-1600</td>
<td></td>
</tr>
</tbody>
</table>

- No wrong answer penalty
- **Essay:** Not part of overall score (graded separately). Graded on scale of 2-8 in Reading, in Analysis, and in Writing.
I headed off on my journey not knowing what I was going to find. When I stepped out of the Dakar airport, it was nearly 100 degrees, the midday sun was scorching. It was also monsoon season. Every day it rained buckets. In the afternoons, it would pour. I would walk the streets of my neighborhood, ankle deep in running water, but by the next morning, it would have all evaporated in the sun.

8. F. NO CHANGE
   G. degrees: and the midday sun
   H. degrees from the midday sun that
   J. degrees and the midday sun

9. A. NO CHANGE
   B. Every day, it rained a lot.
   C. We don’t have monsoons in the U.S.
   D. DELETE the underlined portion.

10. F. NO CHANGE
    G. so
    H. however
    J. except

11. For the sake of the logic and coherence, Paragraph 4 should be placed:
    A. where it is now.
    B. before Paragraph 1.
    C. after Paragraph 1.
    D. after Paragraph 2.
Though these conservation methods can be costly and time-consuming, they are well worth the effort. Nutritionists consider Greek yogurt to be a healthy food: it is an excellent source of calcium and protein, serves as a digestive aid, and it contains few calories in its unsweetened low- and non-fat forms. Greek yogurt is slightly lower in sugar and carbohydrates than conventional yogurt is. Also, because it is more concentrated, Greek yogurt contains slightly more protein per serving, thereby helping people stay

6. The writer is considering deleting the underlined sentence. Should the writer do this?

A) Yes, because it does not provide a transition from the previous paragraph.
B) Yes, because it fails to support the main argument of the passage as introduced in the first paragraph.
C) No, because it continues the explanation of how acid whey can be disposed of safely.
D) No, because it sets up the argument in the paragraph for the benefits of Greek yogurt.

7. A) NO CHANGE
B) as
C) like
D) for

8. A) NO CHANGE
B) containing
C) contains
D) will contain
Which of the following is a value of \( x \) that satisfies
\[ \log_x 36 = 2 \]?

A. 4  
B. 6  
C. 8  
D. 16  
E. 18
Kathy is a repair technician for a phone company. Each week, she receives a batch of phones that need repairs. The number of phones that she has left to fix at the end of each day can be estimated with the equation $P = 108 - 23d$, where $P$ is the number of phones left and $d$ is the number of days she has worked that week. What is the meaning of the value 108 in this equation?

A) Kathy will complete the repairs within 108 days.
B) Kathy starts each week with 108 phones to fix.
C) Kathy repairs phones at a rate of 108 per hour.
D) Kathy repairs phones at a rate of 108 per day.
ACT Reading

Passage II

SOCIAL STUDIES: This passage has been adapted from "Aggression in People Diagnosed with Autism," an article by P. Taylor Van Zee IV (2013).

Since Leo Kanner’s groundbreaking work on early infantile autism in 1943, researchers have been trying to understand the disorder more clearly. Understanding the intricacies of this disorder becomes even more imperative as diagnostic rates continue to rise. The Center for Disease Control’s most recent numbers indicate that one in 88 children will be diagnosed with autism, almost twice the estimate from five years earlier.

A whole host of theories have been advanced to explain the origins of autism. The "frigid mother" theory of the 1960’s, which held that a lack of affection from cold and unloving mothers caused children to become autistic, has since been debunked. So has the more recent immunization hypothesis, which proposed that common vaccinations could induce the disease. While we are beginning to know what doesn’t cause autism, we still don’t know what does. Tens of millions of dollars have been poured into researching its root cause, yet no clear answers are on the horizon.

One topic that has not received enough attention is that researchers are aggression. Aggression in children with autism is important to understand for several reasons. Research has shown that autistic children who display aggression are at greater risk for an overall diminished quality of life, and the same might be said of their caregivers. While it is certainly true that many children and adults with autism do not display aggression, in the form of either self-injurious behaviors or violence toward others, aggression and conduct problems are still cited as the largest source of stress in the caregivers of children with autism. What’s worse, such stress can increase the likelihood that a caregiver will become physically abusive. Additionally, people with autism who display aggressive behavior are much more likely to be isolated in their communities or even removed from their homes altogether. They may end up in residential care facilities, away from their families and their more comfortable home environments. What is abundantly clear is that there are enormous negative consequences for children with autism who display aggressive behaviors.

While some research has been conducted on this topic, an understanding of the issues at hand is far from complete. One of the primary deficits in this area of research has been the ongoing lack of consistency as to what constitutes aggression and how to measure it scientifically.

50 Exclusive at the relationship between autism and aggression, eight different measures for aggression were used. This lack of consensus within the scientific community over how to measure aggression has been a major roadblock to a clearer understanding of the relationship between aggression and autism.

Yet another challenge has been determining how age figures into the relationship between violent behavior and autism. Most studies on this issue have focused solely on typically developing children. Several early studies showed that aggressive behavior decreases with age, while some later studies found no significant relationship between age and levels of aggression. Most recently, researchers have come to the consensus that in typically developing children, aggression tends to peak in the early childhood years and then taper off with age.

Some researchers have theorized that toddlers’ lack of emotion regulation, impulse control, and communication skills is at the root of their aggressive behavior. Another theory maintains that aggressive behavior occurs in the very young, because they have not yet learned how to adapt to their environments, and that once they master this skill, they become less likely to aggress. A third theory holds that language provides an outlet for aggression, and that when children with autism develop, aggressive acts may be seen as a form of communication. Despite the multitude of theories to explain why younger children may be more prone to aggression, researchers have yet to pinpoint a specific cause of childhood aggression. If the understanding of how age affects aggression in typical children is closely related, then research on this relationship in autistic children is stalled in a total fog. Moreover, what may hold true for typically developing children may not hold true for those with autism. Because children with autism often struggle with impulse control, language acquisition, and adaptation to novel environments, all of these factors may be at play.

While much has been done since Kanner’s work in 1943, a good deal of the most recent research on autism has yielded more questions than answers. With autism on the rise, it is crucial that we not only discover its causes so that we may find ways to prevent the disease, but also understand its complex nature so that we may improve the lives of those already affected.

11. The author suggests that research into the causes of autism:
   A. has led to the development of several credible theories.
   B. is not as urgent as research into the disorder’s symptoms or treatment.
   C. should be terminated because it is too expensive.
   D. is important because it could lead to ways to reduce the incidence of the disease.

12. The main idea of the passage is that:
   F. current research on the relationship between autism and aggression is incomplete.
   G. conduct problems are the largest stressor for autistic individuals and their caregivers.
   H. children act violently as a means of communication.
   J. the recent rise in the rates of autism diagnosis is a cause for concern.

13. The author states that all of the following factors can hinder research on aggression in autistic individuals EXCEPT:
   A. researchers’ inconsistency in measuring aggression.
   B. researchers’ tendency to focus research on typically developing children.
   C. the fact that not all autistic patients display aggressive behaviors.
   D. the fact that there may be several interrelated causes of autism.

14. The primary purpose of the second paragraph is to:
   F. debunk erroneous theories about the causes of autism.
   G. provide an example of a topic that has been the focus of autism research.
   H. show how money tends to be squandered in mental health research.
   J. suggest that the vaccination hypothesis is more credible than the "frigid mother" theory.

15. According to the passage, which of the following are potential consequences of aggressive behavior in individuals with autism?
   I. isolation
   II. hospitalization
   III. self-injury
   A. I only
   B. II only
   C. I and III only
   D. I, II, and III

16. The author uses the words cloudy (line 77) and fog (line 79) in order to:
   F. acknowledge the challenge of weather conditions.
   G. help the reader visualize a setting.
   H. distinguish between relative degrees of confusion.
   J. provide examples of current questions in autism research.

17. The passage suggests that present-day researchers agree that:
   A. aggression increases and then decreases in typically developing children.
   B. aggressive behavior is limited to early childhood.
   C. children act aggressively because they feel uncomfortable in their surroundings.
   D. aggression plays a similar role in autistic and typically developing children.

18. The author uses italics in line 16 in order to:
   F. stress the wrongheadedness of early theories about autism.
   G. reveal how little science can tell us about psychological disorders.
   H. distinguish between two popular but erroneous theories.
   J. highlight the failure of extensive research to identify the cause of autism.

19. The final paragraph (lines 84-90) is mainly concerned with:
   A. criticizing Kanner’s early work on autism.
   B. explaining the advances in the field since 1943.
   C. underscoring the field’s remaining research needs.
   D. appealing to the reader’s sense of reason.

20. The author mentions “residential care facilities” (lines 36-37) in order to:
   F. give an example of a problem mentioned elsewhere.
   G. provide evidence for a widely accepted theory.
   H. undermine the conclusions of earlier research.
   J. provide a counterpoint to an earlier argument.
Every day, millions of shoppers hit the stores in full force—both online and on foot—searching frantically for the perfect gift. Last year, Americans spent over $30 billion at retail stores in the month of December alone. Aside from purchasing holiday gifts, most people regularly buy presents for other occasions throughout the year, including weddings, birthdays, anniversaries, graduations, and baby showers. This frequent experience of gift-giving can engender ambivalent feelings in gift-givers. Many relish the opportunity to buy presents because gift-giving offers a powerful means to build stronger bonds with one’s closest peers. At the same time, many dread the thought of buying gifts; they worry that their purchases will disappoint rather than delight the intended recipients.

13
The authors indicate that people value gift-giving because they feel it
A) functions as a form of self-expression.
B) is an inexpensive way to show appreciation.
C) requires the gift-recipient to reciprocate.
D) can serve to strengthen a relationship.

14
Which choice provides the best evidence for the answer to the previous question?
A) Lines 10-13 (“Many... peers”)
B) Lines 22-23 (“People... own”)
C) Lines 31-32 (“Research... perspectives”)
D) Lines 44-47 (“Although... unfounded”)
Graphs and Tables on the SAT: Reading Section

The graph following the passage offers evidence that gift-givers base their predictions of how much a gift will be appreciated on
A) the appreciation level of the gift-recipients.
B) the monetary value of the gift.
C) their own desires for the gifts they purchase.
D) their relationship with the gift-recipients.

The authors would likely attribute the differences in gift-giver and recipient mean appreciation as represented in the graph to
A) an inability to shift perspective.
B) an increasingly materialistic culture.
C) a growing opposition to gift-giving.
D) a misunderstanding of intentions.
Passage VII

Sodium thiosulfate (Na_2S_2O_3) reacts with hydrochloric acid (HCl) to form sulfur (S) and sulfur dioxide (SO_2), as shown in the following equation:

Na_2S_2O_3 (aq) + 2HCl (aq) → S(s) + SO_2(g) + 2NaCl(aq) + H_2O(aq)

A group of students performed experiments to investigate factors that could affect the rate of this reaction.

Experiment 1

Five beakers were labeled 1-5 and a large “X” was drawn across the bottom on the outside of each beaker. Five solutions containing different amounts of a 0.15 M Na_2S_2O_3 solution and H_2O were placed in the beakers. After 5 mL of HCl was added to each beaker, the reaction was timed until the “X” was no longer visible. This procedure was repeated with the other four beakers, and the results were recorded and graphed in Table 1 and Figures 1 and 2.

Table 1

<table>
<thead>
<tr>
<th>Beaker</th>
<th>mL of Na_2S_2O_3</th>
<th>mL of H_2O</th>
<th>Na_2S_2O_3 solution molarity</th>
<th>Reaction time (sec)</th>
<th>Reaction rate (sec^(-1) or 1/time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>0</td>
<td>0.15</td>
<td>20.29</td>
<td>0.0493</td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td>10</td>
<td>0.12</td>
<td>27.87</td>
<td>0.0359</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>20</td>
<td>0.09</td>
<td>39.95</td>
<td>0.0250</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>30</td>
<td>0.06</td>
<td>59.67</td>
<td>0.0167</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>40</td>
<td>0.03</td>
<td>158.73</td>
<td>0.0065</td>
</tr>
</tbody>
</table>

Figure 1

According to Experiment 1, as the molarity of sodium thiosulfate increases, the time it takes to react with hydrochloric acid:

A. increases.
B. decreases.
C. increases, then decreases.
D. decreases, then increases.

Figure 2

Experiment 2

The experiment was repeated, but this time all five beakers were filled with 10 mL of the Na_2S_2O_3 solution and 40 mL of H_2O. The first beaker was kept at room temperature, the second beaker warmed in a 30°C thermo-bath, the third beaker warmed in a 40°C thermo-bath, and so on. The test tubes containing the HCl were warmed in the same thermo-baths as the beakers and then added. The reactions were timed and the results were recorded and graphed in Table 2 and Figures 2 and 3.

Table 2

<table>
<thead>
<tr>
<th>Beaker</th>
<th>Temperature (°C)</th>
<th>Reaction time (sec)</th>
<th>Reaction rate (sec^(-1) or 1/time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22.5°C (RT)</td>
<td>156.25</td>
<td>0.0064</td>
</tr>
<tr>
<td>2</td>
<td>30°C</td>
<td>74.07</td>
<td>0.0135</td>
</tr>
<tr>
<td>3</td>
<td>40°C</td>
<td>47.39</td>
<td>0.0211</td>
</tr>
<tr>
<td>4</td>
<td>50°C</td>
<td>34.14</td>
<td>0.0294</td>
</tr>
<tr>
<td>5</td>
<td>60°C</td>
<td>26.45</td>
<td>0.0378</td>
</tr>
</tbody>
</table>

Figure 3

According to Experiment 2, as the temperature increases, the reaction rate increases:

A. between 0.013 and 0.041.
B. between 0.044 and 0.047.
C. between 0.044 and 0.047.
D. between 0.047 and 0.050.

36. In Experiment 1, if a trial had been done using a solution containing 25 mL each of Na_2S_2O_3 solution and H_2O, the rate of the resulting reaction would most likely be closest to:

F. 0.015 sec^(-1)
G. 0.018 sec^(-1)
H. 0.021 sec^(-1)
J. 0.034 sec^(-1)

37. The Na_2S_2O_3 concentration of the beaker solutions used in Experiment 2 was:

A. 0.02 M
B. 0.03 M
C. 0.12 M
D. 0.15 M

38. The results of the two experiments show that when Na_2S_2O_3 reacts with HCl, a linear relationship exists between which of the following?

I. Na_2S_2O_3 concentration and reaction rate.
II. Na_2S_2O_3 concentration and reaction time.
III. Temperature and reaction rate.
F. I only
G. II only
H. I and III only.
J. II and III only.

39. If in Experiment 2, a sixth trial had been performed at a temperature of 70°C, the reaction rate (sec^(-1)) would most likely have been:

A. between 0.039 and 0.041.
B. between 0.041 and 0.044.
C. between 0.044 and 0.047.
D. between 0.047 and 0.050.

40. It can be inferred that the disappearance of the “X” that signals the end of the reaction can be most directly attributed to which of the following products?

F. H_2O
G. NaCl
H. SO_2
J. S
35. According to Experiment 1, as the molarity of sodium thiosulfate increases, the time it takes to react with hydrochloric acid:

A. increases.
B. decreases.
C. increases, then decreases.
D. decreases, then increases.

36. In Experiment 1, if a trial had been done using a solution containing 25 mL each of Na₂S₂O₃ solution and H₂O, the rate of the resulting reaction would most likely be closest to:

F. 0.015 sec⁻¹.
G. 0.018 sec⁻¹.
H. 0.021 sec⁻¹.
J. 0.024 sec⁻¹.
How to Prepare

• Focus on your schoolwork and your grades.

• For test prep: work with a tutor, enroll in a class, or set aside time every day for practice problems.

• Be patient: improvement takes time.
Test-taking skills

• These tests are different from school tests – it’s about strategy, not just content.

• Timing: how will you pace yourself?

• Strategy: how will you determine which method to use on each problem?

• Triage: how will you distinguish between the problems to do immediately and ones you should skip?
Homework and Mock Testing

• Think of it like an additional class: 25 minutes per day. Consistency is key.
• Target number of mock tests before official test is 5-8.
• The role of mock tests:
  • Get students comfortable with time and timing.
  • Identify areas of improvement.
  • Demonstrate progress.
Long-term planning

• Before 11th grade? Read – a lot – and work hard in math class.

• Develop study skills, executive functioning and self-awareness.

• Get more comfortable with standardized testing.
BESPOKE EDUCATION

CALM