

# Implementation of Team Based Learning (TBL) in a Lebanese Medical School

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Medical education has experienced major improvements throughout the twenty first century which imposed crucial changes in the undergraduate medical curricula. The change entails teaching skills, learning manners, and assessment tactics. However, these approaches were combined with the egression of interdisciplinary approaches and new-fangled educational needs such as “communication skills, professionalism, teamwork, and leadership skills” (Zbheib, Dimassi, Akl, Badr and Sabra 2016, p. 1017).

In addition, medical education approaches in the United States (US) are being taken to new levels that add a minor change on the traditional lectures, by incorporating not only knowledge in a student but also compassion and teamwork skills (Lefter, 2016). Some of the implemented approaches in the US that are recently being used are Active Learning Groups, Interprofessional Education (IPE), Online Self-Learning Modules, Small Group Discussion, and Team-based Learning (TBL). These approaches are basically introduced in the basic-sciences phase during the first two years of a medical student. However, the practice of the TBL approach is growing to cover most medical schools in the US, as it is considered to be a way to help physicians to become members of the pupils' teams with less hierarchical structure within the traditional classroom and more focus on the acquisition of problem solving skills (Lefter, 2016).

TBL is considered to be one approach of group learning which aims to substitute lectures with “self-study” and “group exercises.” The group style learning aids to implement the information acknowledged through problem solving. TBL is also entitled to be a way of flipped classroom where students are encouraged to understand the information on their own. In this manner, class time will be more focused on the analytical, synthetic mental processes, and on incorporating more cases solving and decision making (Zgheib et al. 2016).

TBL was evaluated in ten different medical schools at the beginning of 2003 and it was reevaluated after two years of its implementation in 2005 in order to determine

the progression of the TBL (Thompson, Schneider, Haidet, Perkowski and Richards 2007). The study showed that nine out of ten schools continued to employ TBLs throughout their courses and one school neglected the process since there was no buy-in from the faculty members and students. As for the other nine schools, faculty, administration and students have recommended an ongoing process of TBLs and expressed their gratitude of the new approach (Thompson et al. 2007). In addition, Dr. Nathalie Zgheib and her colleagues (2016) shared a longitudinal follow-up study on the undergraduate medical students which elicited a progressive impact on students by building teamwork skills and scoring better on the team performance test rather than the individual ones. The study also showed that TBL has a positive influence on students' professionalism, communication skills and personal development (Zgheib et al. 2016).

TBL was first implemented at a business school in Oklahoma in the early 1990s, and then the use of TBL started increasing progressively to universities in USA and Canada. This progression affected Lebanon in the beginning of the academic year in 2007 where the Pharmacology department at American University of Beirut (AUB) decided to shift from didactic sessions that were given for medical students to adopt the use of the student centered approach as a trial for the pharmacology classes (Zgheib et al. 2016). The usage of the TBL classes in the faculty of medicine department is now used in classes throughout the first three years of medicine study. This transformation was a result of a curriculum change that affected the entire faculty of medicine department (Zgheib et al. 2016).

TBL implementation is considered to be one of the modern approaches that integrates active learning in the new curricula. Its process of implementation requires the need of an organization to have both a strategic plan and to ensure that individuals gather up towards the same organization's strategy or goal (Sculley, 1987). The main process of implementation of any strategic plan is centered on having a well-operational and unified system and it is also based on attaining effective contribution by all stakeholders (Wyk & Moeng, 2014).

TBL main concept is to correlate communication and interpersonal skills, encourage teamwork, build up discussions among classmates, and to make students capable to send and receive comments (Zgheib et al. 2016). In addition, several researches in Lebanon, noticed that some medical universities have undergone changes in the curriculum to implement such new student centered techniques to encourage student teaching/learning process. Some examples include laboratories, internet assisted learning, simulation labs, virtual teaching, and distant learning. However, American University of Beirut is considered to be the only university in Lebanon to have implemented the Team-Based Learning approach in its curricula. Paul Koles, Arienne Stolfi, Nicole Borges, Stuart Nelson and Dean Parmelee (2010) demonstrated that using TBL in medical academic curriculum has an effect on the academic performances of students. Adoption of TBL leads to a better understanding of the course content. It was also found that students scoring low on academic achievements tended to profit better than those who were high academic achievers (Koles et al. 2010). As a result, medical universities in Lebanon have incorporated TBL sessions in their curriculum and their students are performing much better through exams rather than following traditional didactic lectures learning. In essence, students claimed that TBL stimulated them to study on regular basis and that TBL aides them to actively learn from and teach peers at the same time, which helped improving students' performance scores (Vasan, DeFouw, & Holland, 2008)

This paper conducts the encouragement of TBL implementation in a medical school in Lebanon by stating and clarifying the components and usage of the TBL process. In addition, advantages, challenges and recommendations for a good TBL implementation are stated in the discussion to build up a strong argument to implement TBL in a Lebanese medical university (Zgheib et al. 2016).

### **Main structures and components of TBL**

Each module throughout the pre-clinical academic years includes a certain number of TBL sessions depending on the content to ensure the students' grasping of the main course concepts. Thereby, every TBL session encompasses the following: team formation, assigned readings and objectives, individual readiness assurance test (IRAT), group readiness assurance test (GRAT), application exercises, and formative/summative assessments.

### **Team Formation**

TBL is known as a big classroom teaching style where it gathers all class students in one big classroom. Students in TBL sessions are divided into five to seven members per team depending on the number of students. The team formation is randomly aggregated and depends only on two factors: pre-experience (grades), and gender. The teams are usually shuffled three times during an academic year, taking into consideration that the student does not partner again with a pre-team member. This process is done in order to maintain equity among team participants and to encourage the high level students to teach the poor level ones. This would promote the latter to put more effort on TBL materials preparation before coming to class.

### **Assigned readings and objectives**

Prior to the TBL sessions, students are given home reading assignments to prepare. These materials include the preparation for the Readiness Assurance Test (RAT) process and the contents that are going to be covered in class. In the old traditional system, assignments were done through giving the students lectures that have been tackled in classes (Sabra & Zgheib, 2016) These materials include the main concepts and ideas that need to be understood in order to solve the problem set of questions in the TBL session (Michaelsen & Sweet, 2008)

### **Individual Readiness Assurance Test (IRAT)**

This test is held at the beginning of the TBL class where students are faced with "Multiple Choice Question" and are requested to select one best answer. The test is distributed per individual and is usually given about ten questions in length with four to five multiple answers. Students often receive a minute per question, depending on the difficulty level, and they are requested to solve the questions and select their responses accordingly on a Scantron sheet form of paper (Burgess, Ayton, & Mellis, 2016) This test assesses the understanding of the pre-class preparation and the students' readiness to apply the knowledge acquainted to solve the problems given (Sabra & Zgheib, 2016) The questions should mainly focus on the main concepts, not small details, and therefore be challenging to stimulate team discussion (Michaelsen & Sweet, 2008)

### **Group Readiness Assurance Test (GRAT)**

After students complete their IRAT and hand in their Scantron sheet papers along with the questions, each team is given a folder where it encompasses several documents. One of the papers is the GRAT where students are supposed to work on the same individual test, but in allocated teams. However, this test is

accompanied with a special form called IF-AT cards (“intermediate feedback assessment technique”, attached below in appendix A). According to Drs. Ramzi Sabra and Nathalie Zgheib, these given forms are “self-scoring answer sheets” that deliver immediate feedback about the correct answer (Sabra & Zgheib, 2016). Students are expected to reach consensus among their team members regarding the GRAT questions through interactions and discussions, thereby each team is expected to find the star mark in every correct scratch, if the first attempt was not successful, they should keep on trying to uncover the boxes of the IFAT forms until the mark is revealed. However, the score diminishes with every wrong attempt, if a correct score is achieved from the first attempt of scratching, the team will score a full grade which is “4” per question, those who answer from the last trial will score zero. The grades at the end of the IFAT paper will be summed up and calculated to deduce final score of each team (Burgess, Ayton, & Mellis, 2016). The IFAT forms are considered an instrument to promote both notion understanding and cohesiveness in educating groups (Michaelsen & Sweet, 2008).

**Application Exercises**

This section of TBL comes directly after the GRAT. Team members find in distributed envelopes papers entitled “Application exercises”. These papers are usually printed out equally as per the number of students in each group where they are requested to solve the applications together. In this process students are able to use extra sources/lectures that were assigned to them. The application exercises include open book problem exercises where students can relate their concepts and knowledge obtained to solve the given problems and make group decisions. According to Drs. Sabra and Zgheib this section represents a significant problem where students are asked to select by consensus an answer to determine their choices in solving the case or the problem given (Sabra & Zgheib, 2016). At the end of this section, when students complete the exercises within the specified time, each team is requested to use letter cards that are present in each distributed team folder upon the demand of the facilitator and raise the letter that shows the best answer that fits the teams choice, this process is repeated for every question. When teams are faced with different answers, selected teams need to provide evidence regarding their choices to defend the answer selected and convince other groups in the classroom. Therefore, students tend to learn more from the wrong agreed answers rather than confirming on correct answers (Michaelsen & Sweet, 2008).

**Formative/Summative Assessments**

As per my observation through the TBL classes, formative and summative evaluations are considered as crucial for both individuals and facilitators.

*Formative Assessment*

After every TBL session, students are encouraged to fill in the evaluation forms that are attached to the team files after completing the sessions. The formative assessment table example, Table 1, represents four different criteria and have five different ranking levels (Zgheib et al. 2016). The table emphasizes on the level of students grasping the TBL concepts by checking the top rank “to a very high degree” or the other lower ranking levels.

TABLE 1: FORMATIVE ASSESSMENT TABLE RANKING

Question	To a very high degree	To a considerable degree	To a moderate degree	To a small degree	Hardly at all
The session taught me how to apply what I learnt from the lesson material					
The session enhanced my understanding of the material					
The session stimulated my interest in the material					
The case promoted critical thinking					

*Summative assessment*

This assessment is completed by students by the end of every module to determine several aspects throughout the course. The summative evaluation advised is the “360 evaluation”. The 360 evaluation asks each student to fill in some questions regarding the module, instructors and TBL peer members, where students of each group are asked to state some feedback on each other and he/she needs to post also a feedback on the self. This type of evaluation is anonymous which makes the students feel comfortable when filling them. No one would know about the results of the evaluations except for the course coordinator and chairperson. This type of evaluation is done in order to detect the feedback of the students regarding the course and the student-centered approaches that are being used in the curriculum such as TBLs and to perceive what sections need to be improved and adjusted. This evaluation process is usually posted electronically for students once every academic module, where individuals have to fill-in the form for each person in the same TBL team. The peer evaluation

includes questions related to communication skills, professionalism, and personal development. The aim of this appraisal is to render students accountable for their own preparation and participation among their team members. It is a way to probe individuals to contribute more in the process of team work (Cestone, Levine, & Lane, 2008).

Studies show that TBL is accompanied with several positive learning outcomes along with some barriers. This shows the success or failure of the TBL in the context of implementing such a newfangled approach in the Lebanese medical education program. Moreover, the below descriptive analysis of this new approach provides valuable insights that assist individuals in the TBL implementation.

## **Advantages of TBL**

### ***Benefits for students and group members***

#### *Encouraging Higher-Level Learning*

Case discussion is a way to provide students with the chance to apply their understanding of the concepts to resolve the problems given. Thereby, application exercises aim to foster accountability and “give-and-take” discussions first within the group itself, then among other teams (Michaelsen and Sweet 2008).

#### *Learning about the Quality of Teamwork*

According to Michelson and colleagues, student groups have the impression that the teams are outperforming their best member. In their paper, they were able to determine the average of each student scores, low, average, and high and compared the results with the team performance score related to the individuals. Thus, the results were compared from the first use of TBL; the authors show that almost 99.9 percent throughout the past 20 years, 1,600 teams have outperformed their own best member. In addition, Michelson and colleagues demonstrate that the lowest group scores among these groups tested had grades better than the highest individual marks (Michaelsen and Sweet 2008).

#### *Learning about Themselves*

One of the crucial roles of TBL is that it generates conditions where students are allowed to learn about their interactions with others throughout the connections that students make within group members and teams. Through the time, members tend to learn more about their teams, they acknowledge the strengths and weaknesses of individuals in the teams (Sweet and Michaelsen 2012). This enhances the students’ interactions; thus, each would discover different ways

to teach and communicate with other members. Nevertheless, this process encourages the students to build up strong interpersonal relationships among group members (Michaelsen and Sweet 2008).

#### *Mastering the Concepts*

Students tend to master the basic science concepts from the modules through TBL sessions. For instance, the latter provides, if implemented correctly, more than just accurate knowledge; it gives a depth of understanding that is collected by solving a set of clinical based questions which combines all the TBL team efforts to complete. Students throughout this process gain an insight on their capabilities, discovering their individual and group strengths and weaknesses (Michaelsen and Sweet 2008). As per Slavin (1990) cooperative learning would lead to an escalation in student performance when individuals accountability are assimilated in the cooperative methods.

### ***Benefits from an Administrative Perspective***

Several advantages elicit for the administrative section, if the TBL is well implemented:

1. TBL implementation would lead to operative, self-managed learning teams where less load on the administrative part is required, since professional and faculty members will be less involved in training facilitators.
2. TBL is considered to be cost-effective in the implementation since the process will just require the usage of large classrooms. Thereby, TBL is successfully employed across all medical academic programs.
3. The assignments given through TBL process lessen the possibility for interpersonal conflicts within team members. This decreases the part where administrators need to deal with such personal or political debates raised by students (Michaelsen & Sweet, 2008)

### ***Benefits for Faculty***

TBL is a way where students are prompt to engage discussions among each other and clarify their own point of view through evidences. This would decrease the load that comes on the faculty sides, where they do not need to maintain traditional lecture-based teaching. When TBL is well implemented:

1. Tutors seldom have to worry about the attendance of students, materials grasping and pre-preparation of students before the TBL sessions, since students will have a RAT process that is graded by the end of the session. This would encourage all students to attend the class, and throughout their presence and preparation,

students will have the chance to grasp the concepts very well through the discussions that are being initiated in class (Sweet & Michaelsen, 2012).

2. When students come prepared to class, instructors will not be dealing with empty vessels, but on contrary they will be dealing with colleagues that are well informed about the topic unlike what usually happens in traditional lecture-based sessions.
3. Teachers tend to promote better relationship with students since they act as listeners and observers of the sessions unlike traditional way where teachers act as one lecture based communication. This would create a bond between students and teachers where both become “partners in education process” (Michaelsen & Sweet, 2008)

## **Barriers Confronting TBL Implementation**

### ***Poor Content Expertise***

Lack of content proficiency affects mostly novice teachers, where they depend highly on course books and materials; thereby, they tend to be a chapter ahead of their students. This creates a problem when students ask such questions outside the current chapter and readings which new teachers are not able to answer. This might jeopardize the success of the TBL application (Lane, 2008).

### ***Tutor-Centered Concentration***

Teachers are considered to be the center of the class and most of them think that they are not supposed to relinquish their positions even during student-centered sessions. However, researchers have demonstrated that instructors must abandon their lecturer skills as experts sometimes in order to have a deep learning of students; whereby high level of interactions and engagements among students need to happen (Lane, Teaching Skills for Facilitating Team-Based learning, 2008).

### ***Defensiveness of Instructors***

When teachers are faced with a group of questions and challenges from unified students, they tend to feel unable to answer so they act defensively by imposing a certain concept without eliciting clarifications. This leads students to a state of frustration (Lane, Teaching Skills for Facilitating Team-Based learning, 2008).

### ***Lack of Clarity about the TBL Content***

Some teachers place the content of their TBL sessions without understanding the main reason of the TBL sessions. For instance, they place content of the

applications without providing opportunity for students to apply the basic concepts acquainted which is considered to be one of the main facets of a TBL session (Lane, Teaching Skills for Facilitating Team-Based learning, 2008).

### ***Inadequate time for Course Reform***

Redesigning a course from traditional lecture to a TBL format requires lots of effort and time. Thus, facilitators when selecting to transform such sessions to TBL, they are requested to prepare different stages of questions and cases: RAT, and application exercises. This process usually takes time and is needed to be prepared ahead of the session (Lane, Teaching Skills for Facilitating Team-Based learning, 2008).

## **Factors and Recommendations for a Better TBL Implementation**

### ***Buy-In***

Wyk and Moeng (2014) explain that creating a new strategy requests a deep understanding of what the organization strives to achieve in order to initiate the change effectively. This is done through collaboration among faculty members, administrators and students to achieve a “coherent vision and collegial culture” in the organizations (Kaufman, Herman, & Watters, 2002). Therefore, buy-in is a crucial process that is requested from faculty members, administrators, and students. It would help teachers have the traits of “willingness”, “interest”, and “enthusiasm” about using the TBL teaching approach, as it is a way to apply resources in a different framework. Buy-in requires from students to have “openness”, “receptiveness”, “willingness” to change methods, and “cooperation”. As for administrators, buy-in requires the acceptance mainly from the dean of the faculty (Thompson, et al. 2007).

### **Report**

Reports should be made in order to document the results of the TBL implementation after every module completion. It is considered a way of communication among the stakeholders to provide decision making, whereby the school board such as the chairperson/Dean of the medical education should be also included in order to move forward with the implementation process (Kaufman, Herman, & Watters, 2002).

### **Management and continuous improvement**

An educational team should be assigned to follow up with the implementation of the TBL process and promote what the medical pre-clinical curriculum is using to match the meanings with the ends and be able to achieve the mission and vision of the organization

(Kaufman, Herman, & Watters, 2002) Management of the TBL needs to be handled by the management of the organization.

### **Expertise**

The know-how of the TBL needs to be garnered through continuing training sessions for faculty members whether from national or school workshops. In addition to mentoring other skillful facilitators that are using the TBL approach which is elicited by monitoring facilitators from a different university that has the current program implemented (Thompson, et al. 2007).

### **Resources**

A large classroom is requested to be able to conduct a TBL lecture that includes large number of students. Moreover, good seating arrangement needs to be provided since each session is about two hours long. Also, sound proofing walls would be preferable to allow adequate interactions among the teams itself and different groups without bothering neighbor classes. In addition to a question bank for each module is advisable for the RAT processes along with the application exercises to facilitate the access for teachers to choose among questions. Finally, an assigned personnel needs to be employed to take care of the calculation process of the TBL grades and make sure to prepare the equipment and supplies needed for every single session (Thompson, et al. 2007).

### **Time**

Materials need to be developed at the onset since TBL preparation is judged to be time consuming and needs lots of efforts from teachers. Time flexibility in the curriculum is also considered important since the process of every TBL session takes more than a normal class lecture period (Thompson, et al. 2007). Despite the barriers that are mentioned above, I would definitely encourage the implementation of TBL in medical schools since the latter plays a vital role in the ongoing learning process. It also has a positive influence on students and instructors at the same time, since TBL invigorates the classroom and make teaching/learning become pleasurable, energized and non- repetitive.

### **Conclusion**

A transition is taking place over the years in all medical education to shift from conventional to modern teaching and learning. Therefore, Lebanese medical universities need to be aware that TBL is one of the vital approaches in education that leads to a better understanding of the materials and concepts. Medical universities in Lebanon should start bridging the self-

educational gap and accommodate with the TBL growth that is happening around the world. In addition, Team-based Learning is determined to be one of the self-teaching approaches where students learn more and come to classes more prepared. It has also a crucial impact on students' engagement in their lifelong learning when they become ascertain that the course is relevant, the instructor is reliable and what they are learning eventually matters (Lane, 2008). Despite the disadvantages listed above, several positive benefits are elicited from the TBL on the instructor since this new mode of teaching invigorates the classroom and makes teaching more stimulating. Furthermore, implementing the above recommendations to maintain a well surrounded TBL environment would aid pupils and facilitators to have a positive and significant experience along their academic years. There has not been any longitudinal follow up studies on the influence of TBL on students after the pre-clinical years. Studies are only done within the two years of basic sciences but they do not determine the effectiveness of TBL approach on students after the basic sciences phase.

### **References**

- Burgess, Annette, Tom Ayton, and Craig Mellis. 2016. "Implementation of team-based learning in year 1 of a PBL based medical program: a pilot study." *BMC Medical Education*. Vol. 16. BMC series, DOI: 10.1186/s12909-016-0550-3.
- Cestone, Christina M., Ruth E. Levine, and Derek R. Lane. 2008. "Peer assessment and evaluation in team-based learning." *Wiley InterScience* (Wiley InterScience DOI: 10.1002/tl.334) no. 116: 69-78.
- Dana, Susan W. 2007. "Implementing team based learning in an introduction to law course." *Journal of Legal Studies Education* 24: 59-108.
- Kaufman, Roger A., Jerry John Herman, and Kathi Watters. 2002. "Educational planning: Strategic, tactical, operational." In *Educational Planning*, 287. University of Michigan: Scarecrow Press
- Koles, Paul G., Adrienne Stolfi, Nicole Borges, Stuart Nelson, and Dean X. Parmelee. 2010. "The impact of team-based learning on medical students' academic performance." *Academic Medicine* 85(11): 1739-1745.
- Lane, Derek. 2008. "Teaching skills for facilitating team-based learning." *New Directions for Teaching and Learning*. No. 116 (December): 55-68. DOI: 10.1002/tl.333.

- Lefter, Daniel. 2016. "In-Training the agora of the medical student community." *New and Future Approaches to Medical Education*. Camden, NJ: Cooper Medical School of Rowan University.
- Michaelsen, Larry K., and Michael Sweet. 2008. "The essential elements of team based learning." *New Directions For Teaching and Learning* 116: 7-27. DOI: 10.1002/tl.330).
- Michaelsen, Larry K., L. Dee Fink, and Arletta Knight. 1997. "Designing effective group activities: Lessons for classroom teaching and faculty development." Vol. 16: 373-397. Professional and Organizational Development Network in Higher Education University of Nebraska- Lincoln.
- Motlagh, Maryam Karbasi, Atena Rahmati Najarkolai, and Fatemeh Keshmiri. 2015. "Team-Based learning in medical universities: Infrastructure and requirements." *Thrita*, September 7: 1-6.
- Parmelee, Dean X., and Larry K. Michaelsen. 2010. "Twelve tips for doing effective team-based learning (TBL)." *Medical Teacher*, 32: 118-122.
- Sabra, Ramzi, interview by Rami Hawi. *Field Report Experience* (October 26, 2016).
- Sabra, Ramzi, and Nathalie Zgheib. 2016. *Team based learning (TBL)*. <https://www.aub.edu.lb/fm/me/Pages/TBL.aspx>.
- Sculley, John. 1987. "Implementation." *Odyssey: Pepsi to Apple... A journey of Adventure, Ideas, and the Future* (Harpercollins) 1st Edition October: 325-343.
- Slavin, Robert E. "Research on cooperative learning: Consensus and controversy." *Educational leadership* 47, no. 4 (1990): 52-54.
- Sweet, Michael, and Larry K. Michaelsen. 2012. *Team-Based learning in the social sciences and humanities: Group work that works to generate critical thinking and engagement*. Sterling, Va: Stylus Publishing.
- Thompson, Britta M, Virginia F Schneider, Paul Haidet, Ruth E Levine, Kathryn K McMahon, LindaC Perkowski, and Boyd F Richards. 2007. "Team-based learning at ten medical schools: Two years later." *Medical Education* 41: 250-257.
- Thompson, Britta, Virginia Schneider, Paul Haidet, Linda Perkowski, and Boyd Richards. 2007. "Factors influencing implementation of team-based learning in health sciences education." *Academic Medicine* 82(10): S53-S56.
- Tweddell, Simon. 2010. "Team-Based learning." *University of Bradford Making Knowledge Work*: 1-13.
- Vasan, Nagaswami, David DeFouw, and Bart Holland. 2008. "Modified use of team-based learning for effective delivery of medical gross anatomy and embryology." *Anatomical Sciences Education* 1(1): 3-9. DOI 10.1002/ase.5)
- Whitley, Heather P., Edward Bell, Marty Eng, Dabid G. Fuentes, Kristen L. Helms, Erik D. Maki, and Deepti Vyas. 2015. "Practical team-based learning from planning to implementation." *American Journal of Pharmaceutical Education* 79(10) Article 149: 1-12.
- Wyk, Chris van, and B.G. Moeng. 2014. "The design and implementation of a strategic plan in primary schools." *International Business & Economics Research Journal* 13(1): 137-144.
- Zgheib, Nathalie. 2012. "Team based learning." *CTL Newsletter* 1(1): 1-6.
- Zgheib, Nathalie, Zakia Dimassi, Imad Bou Akl, Kamal Badr, and Ramzi Sabra. 2016. "The long-term impact of team-based learning on medical students' team performance scores and on their peer evaluation scores." *Medical Teacher* 38(10): 1017-1024.

APPENDIX A

**IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE**  
Name \_\_\_\_\_  
Subject \_\_\_\_\_  
**SCRATCH OFF COVERING TO EXPOSE**

	A	B	C	D	E
1.					
2.					
3.					
4.					
5.					
6.					