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ABSTRACT

Johns Hopkins University and Montgomery County Public Schools, Maryland, jointly sponsor the program "SUPPORTS for Least Restrictive Environment," a graduate program in special education which supports the vision of educating all students together in the general education classroom. In the practicum phase of their program, general education teachers, in conjunction with a special educator in their building, included students with mild, moderate, and severe learning disabilities in their classes. They implemented strategies which resulted in positive changes in the academic and social achievement as well as positive changes in behavior of students with learning disabilities in general education settings. These academic interventions involved implementation of cooperative learning in a sixth grade science class, team teaching and cooperative learning in a third grade science class, and classwide peer tutoring in a second grade math and spelling class and a first grade reading class. Teachers also implemented behavior change strategies, focusing on remaining on task, completing classroom assignments, remaining seated during instruction, and exhibiting greater self-control. Through the use of effective and inclusive practices, these educators brought about positive changes in the academic, attitudinal, and behavioral achievement of students with learning disabilities in general education settings. Appendixes contain attitudinal surveys, pretests/posttests, and data relating to interventions. (JDD)

EMPOWERMENT OF THE GENERAL EDUCATOR THROUGH EFFECTIVE TEACHING STRATEGIES

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EMPOWERMENT OF THE GENERAL EDUCATOR

THROUGH EFFECTIVE TEACHING STRATEGIES

Introduction

As best practices for inclusive and effective schools emphasize the inclusion of students with disabilities in general education settings, the educational mainstream is becoming an exciting and challenging place. Johns Hopkins University and Montgomery County Public Schools, Maryland jointly sponsor the program **SUPPORTS for Least Restrictive Environment**, a graduate program in special education which supports this vision of educating all students together in the general education classroom. In the practicum phase of their program, general education teachers, in conjunction with a special educator in their building, included students with mild, moderate, and severe learning disabilities in their classes. During this time they implemented strategies which resulted in positive changes in the academic and social achievement as well as positive changes in behavior of students with learning disabilities in general education settings. The results of these strategies are presented in the following sections.

Academic Interventions

Cooperative Learning - Sixth Grade - Science

A sixth grade teacher, who was responsible for the sixth grade level science instruction, selected cooperative learning as her intervention strategy to best meet the needs of a diverse group of students with disabilities ranging from mild to severe

learning and language disabilities. The unit of instruction was simple machines, and the students were involved in the identification of each machine as well as demonstrations of their uses and mechanical advantages. As the students worked in their four member teams, they were given rotating roles of reader/reporter, recorder, gatherer, and starter. Students were instructed on the responsibilities of their roles which were changed daily.

Pre-test results indicated that few students were able to identify the simple machines (See Table 1). Following the unit a post test was administered. Results indicated that students were secure in their ability to identify all the simple machines with 90-100% accuracy.

Students' attitudes toward working cooperatively in science were also assessed. On the pre-attitude survey (Table 2) it was noted that less than half of the students (36%) enjoyed working with a partner and less than 25% reported enjoying working with a group. The post data indicates a rise in every area, from the enjoyment of science in general to help others. The data indicated a dramatic rise in the areas of working with a partner and working with a group as well. They also indicated an increase in their willingness to ask peers for help.

Team Teaching and Cooperative Learning - Third Grade - Science

One of the participating teachers, a third grade teacher who had students in her class ranging from GT/LD (Gifted and Talented/Learning Disabled) to students with mild and moderate

learning disabilities, team taught all science lessons with a teacher of a "self-contained" program for students with multiple disabilities. Lessons featured cooperative learning activities that fostered interdependence and natural peer supports. The children served as advocates for each other and fully participated in the cooperative inclusive science lessons.

During the science unit, the children monitored the growth progress of their individual plants. They drew sketches of the plants and wrote observations of plant growth in science logs. The writing ability of the students was evaluated along with their attitudes toward science in general. Children on all academic levels, (gifted, average, mildly learning disabled, multiply handicapped) improved in their writing skills. The writing expanded in length and detail (See Table 3). In addition, their attitudes improved in science from the beginning to the end of the plant unit (See Table 4).

ClassWide Peer Tutoring - Second Grade - Math and Spelling

A second grade teacher, who had students performing from readiness level to fourth grade reading level, also had students with mild learning disabilities as well as a child included in her class with cerebral palsy. In order to accommodate the variety of levels in her classroom, she selected ClassWide Peer Tutoring (CWPT) for her strategy and implemented it in both spelling and math.

In math, the students were heterogeneously grouped in pairs. When serving as a tutor, the student read problems from a fact

sheet while the student being tutored wrote the problem and the answer which was then checked by the tutor. Because each tutor had an answer sheet, students working on addition facts could serve as tutors for more advanced students who were studying multiplication and division. Student achievement in math, according to mean scores achieved by high, average, and low achievers, is presented in Table 5. Average scores on weekly post-tests six weeks prior to the implementation of CWPT and six weeks into the program are presented. Results show that the low achieving students made significant gains and that all three groups improved.

Spelling scores were recorded from Monday's pre-test to Friday's post test (See Table 6). Results showed that significant gains were made by each group from pre to post test. This graphing technique allowed the teacher to keep track of progress as well as to adjust instruction for those students who knew most of the week's words after taking the pre-test. The teacher provided more challenging words for these students rather than assigning them words already mastered.

This teacher also gave her students an attitudinal survey in spelling (See Table 7). Results showed that the children had more positive reactions to spelling after the ClassWide Peer Tutoring program was implemented than before when they were using traditional methods to learn spelling words.

ClassWide Peer Tutoring - First Grade - Reading

A first grade teacher implemented ClassWide Peer Tutoring

for her reading class which included several students with mild learning disabilities as well as several students in the prereferral stage and one student with moderate to severe multiple disabilities. The purpose of her intervention was to increase the recognition of sight vocabulary words on the Dolch word lists. Students tutored each other daily using flash cards, sentences containing the words, and finally written passages using the words. Each student worked according to his or her instructional level.

Results broken down into high, average, and low achieving students are presented in Table 8. The students mastered vocabulary beyond the expectations of this teacher. It was clearly evident that peer tutoring proved to be an extremely effective strategy for all students in the class.

Behavior Change Strategies

It is rare that a general education teacher will have a year go by where there is not at least one significant behavior problem with a student who disrupts learning not only for himself, but also for the rest of the class. The teachers participating in the **SUPPORTS for Least Restrictive Environment** program were not exempt from this phenomenon and experienced a variety of behavior problems not only with some of their identified students with learning disabilities, but with students they were trying to work with on a prereferral basis. These teachers enhanced the learning possibilities in their classrooms by implementing behavior change strategies and kept ongoing data

on targeted students.

Remaining on Task

A seven year old first grader was unable to remain on-task and instead wandered around the classroom and talked to friends. After attempting to modify this behavior through parent conferences, isolation, and providing reminders, a system was employed whereby the student earned stars when remaining on task for five minute intervals. Teacher praise and approval were paired with the receiving of the stars. Index cards for recording stars were placed on the student's desk. A timer and classroom clock were used for timing. Stickers, decorative pencils and "Good Work": notes home could be exchanged for the stars. During the collection of the baseline data, off-task behaviors were evident 83% of the time (See Table 9). After participation in the behavioral program, a dramatic reduction in the student's exhibition of off-task behaviors was evident. The elimination of the off-task behaviors resulted in increased completion of academic tasks and quality independent seatwork.

Completing Classroom Assignments

One second grade student was having great difficulty completing class assignments. For the first week, baseline data was collected (See Table 10). The student completed no assignments. The intervention consisted of a chart upon which the teacher tallied daily completed assignments. The student self-recorded completed assignments as well. If the student completed three assignments in one day, he was reinforced with an

edible reinforcer. A reversal design was implemented and the reinforcer was removed for a period of time. As Baseline 2 (Table 10) shows, this student was not ready to have the reinforcement withdrawn. The program was re-implemented and by the end of the school year, an intermittent schedule of reinforcement was occurring. Other benefits occurred such as a continuous gain in self-confidence as well as being viewed by the other members of the class as an active contributing student.

Remaining Seated During Instruction

A third grade student with high verbal ability and mild learning disabilities in the area of written expression, had a habit of jumping out of his seat without raising his hand in order to answer a question or make a comment. The teacher taught the student to self-monitor his "stand-ups" on a tally card taped to his desk. Each day that the total of "stand-ups" was one or zero, he would be reinforced by being allowed to lead the sharing session that closed the school day. This intervention utilized the student's natural verbal ability. It was intrinsically reinforcing for him to raise his hand during the lessons in order to earn the right to lead the verbal classroom sharing activities. Baseline data was collected which indicated an average of 6 stand-ups (See Table 11). During the first intervention phase the behavior eventually faded to zero "stand-ups." A reversal design was used and the reward was withdrawn for a period of time. As can be seen in Table 11, this student was not yet ready to be "on his own" with modifying this

behavior. Therefore, the strategy was re-employed and again the behavior reduced to zero.

Exhibiting Greater Self-Control

A sixth grade student, with a school history of calling out without raising his hand (sometimes up to 20 times in a 45 minute class period), was targeted for a behavior intervention. The intervention was two-fold. A DRI (Differential Reinforcement of Incompatible Behaviors) and a self-management technique were employed. The DRI Technique included ignoring the target behavior (calling out) and simultaneously reinforcing a behavior that was incompatible with the target behavior. Therefore, the student was verbally reinforced whenever he raised his hand and waited to be called on before speaking. The self-management component involved the student in recording his own behavior. Every time he called out he recorded the instance on a sheet.

During the first intervention phase, the student decreased his call-outs to an average of 12 per class period (See Table 12). A return to baseline conditions was implemented. During this reversal phase, his call-outs increased again to an average of 16 call-outs. This number, although higher than during the intervention phase, was not as high as the original baseline. The DRI and self-management techniques were reinstated. The number of call-outs decreased dramatically falling to an average of 10. The results of this study indicated that the combination of self-management and DRI provided an effective and efficient method for decreasing an undesirable behavior for this student.

Conclusions

The teachers who implemented these strategies in their general education classes view the inclusion of students with disabilities as a welcome addition rather than a disruptive and negative force in their classrooms. Instead of using their time and energy trying to get students with disabilities out of their classrooms which has been the model for so long, they are working actively to bring these students into and keep these students in their classes. The strategies they employed were not difficult, but provided them with methods to closely monitor the progress, attitudes and behavior of their students. Through the use of effective and inclusive practices, these educators carried out strategies which resulted in positive changes in the academic, attitudinal and behavioral achievement of students with mild, moderate and severe learning disabilities in general education settings and have proven that general education teachers can become empowered to teach every student who walks in the door of their classrooms.

Directions: Answer the first two questions as thoroughly as you can. For question number 3 - 8, circle yes or no.

1. What does the word 'work' mean in science?

	Correct	Incorrect
Pre:	22%	78%
Post:	61%	39%

2. What is 'mechanical advantage'?

	Correct	Incorrect
Pre:	16%	84%
Post:	74%	26%

3. Is a screw a machine? YES NO

	Correct	Incorrect
Pre:	9%	81%
Post:	96%	4%

4. Is a wedge a machine? YES NO

	Correct	Incorrect
Pre:	5%	95%
Post:	90%	9%

5. Is a lever a machine? YES NO

	Correct	Incorrect
Pre:	17%	83%
Post:	99%	1%

6. Is a pulley a machine? YES NO

	Correct	Incorrect
Pre:	49%	51%
Post:	98%	2%

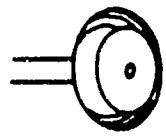
Simple Machines (con't)

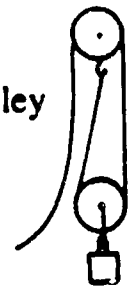
7. Is a wheel and axle a machine? YES NO

	Correct	Incorrect
Pre:	56%	44%
Post:	100%	0%

8. Is an inclined plane a machine? YES NO

	Correct	Incorrect
Pre:	11%	89%
Post:	99%	1%





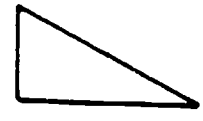


TABLE 1-3

SIMPLE MACHINES – GRAPH

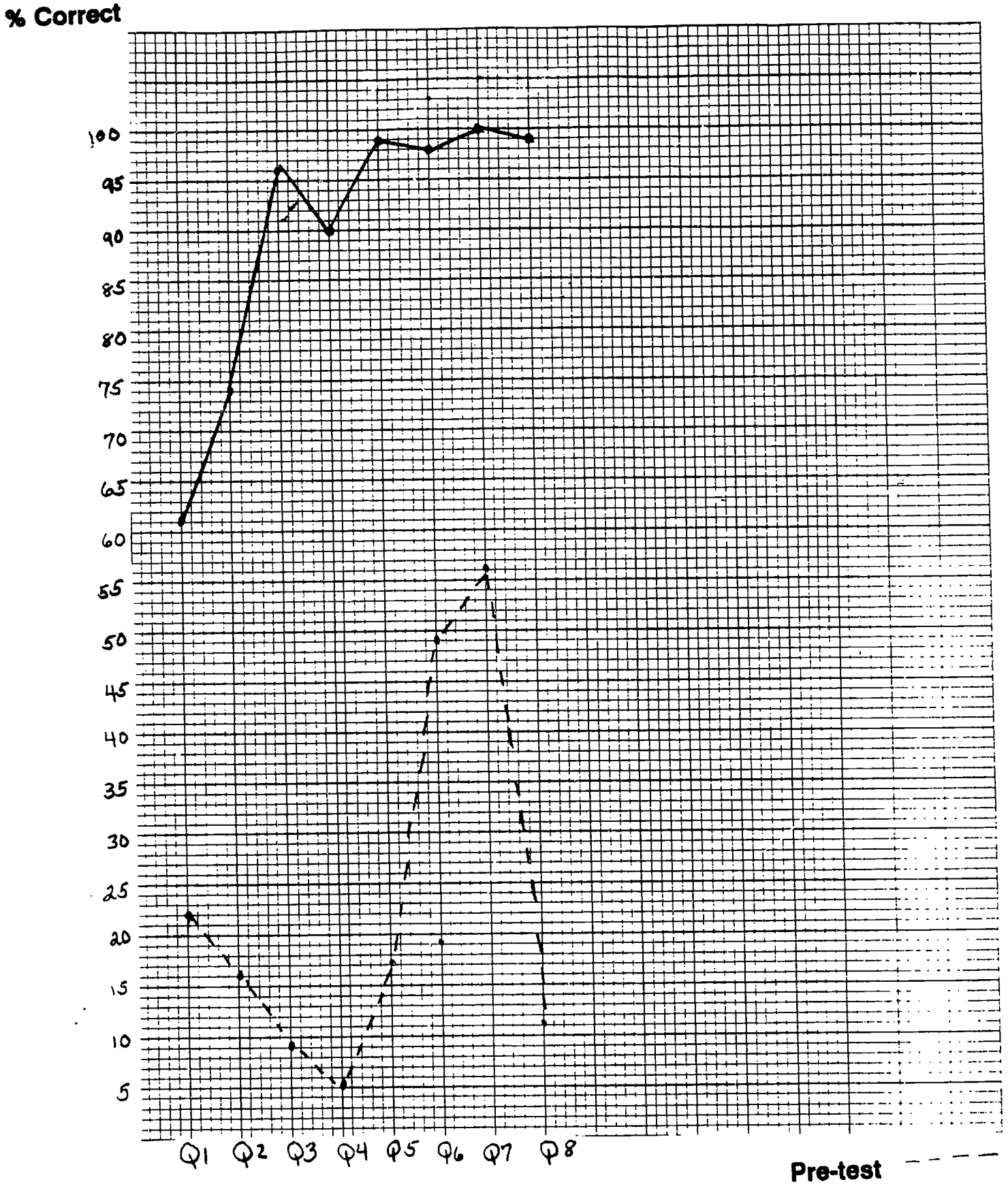
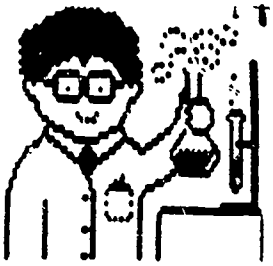


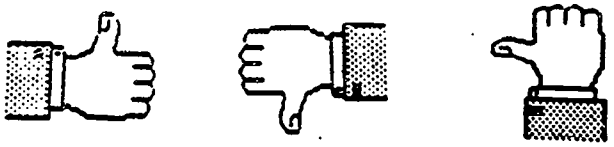
TABLE 2-1



Science Attitudinal Survey

Directions: Circle one answer for each question.

1. I like science.



Yes No Sometimes

	Yes	No	Sometimes
Pre:	50%	20%	30%
Post:	72%	9%	19%

2. I like to have an active part in science experiments.

Pre:	39%	7%	54%
Post:	78%	3%	19%

3. I would rather do a science experiment than read out of the textbook.

Pre:	52%	13%	35%
Post:	82%	5%	13%

4. I like to work with a partner.

Pre:	36%	29%	35%
Post:	49%	11%	40%

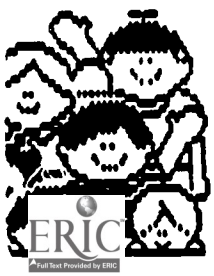


TABLE 2-2 **Science attitudinal Survey (con't)**

5. I like to work in a group of 3 or 4 students.

Pre:	19%	41%	40%	Post:	57%	7%	36%

6. When I have a question or problem in science, a friend can help me figure it out.

Pre:	21%	16%	63%	Post:	89%	2%	9%

7. I can help a friend figure out their questions or problems in science.

Pre:	31%	21%	48%	Post:	44%	5%	51%

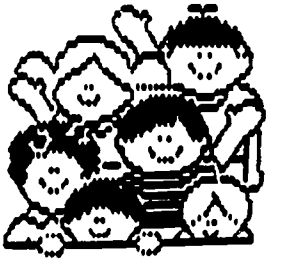


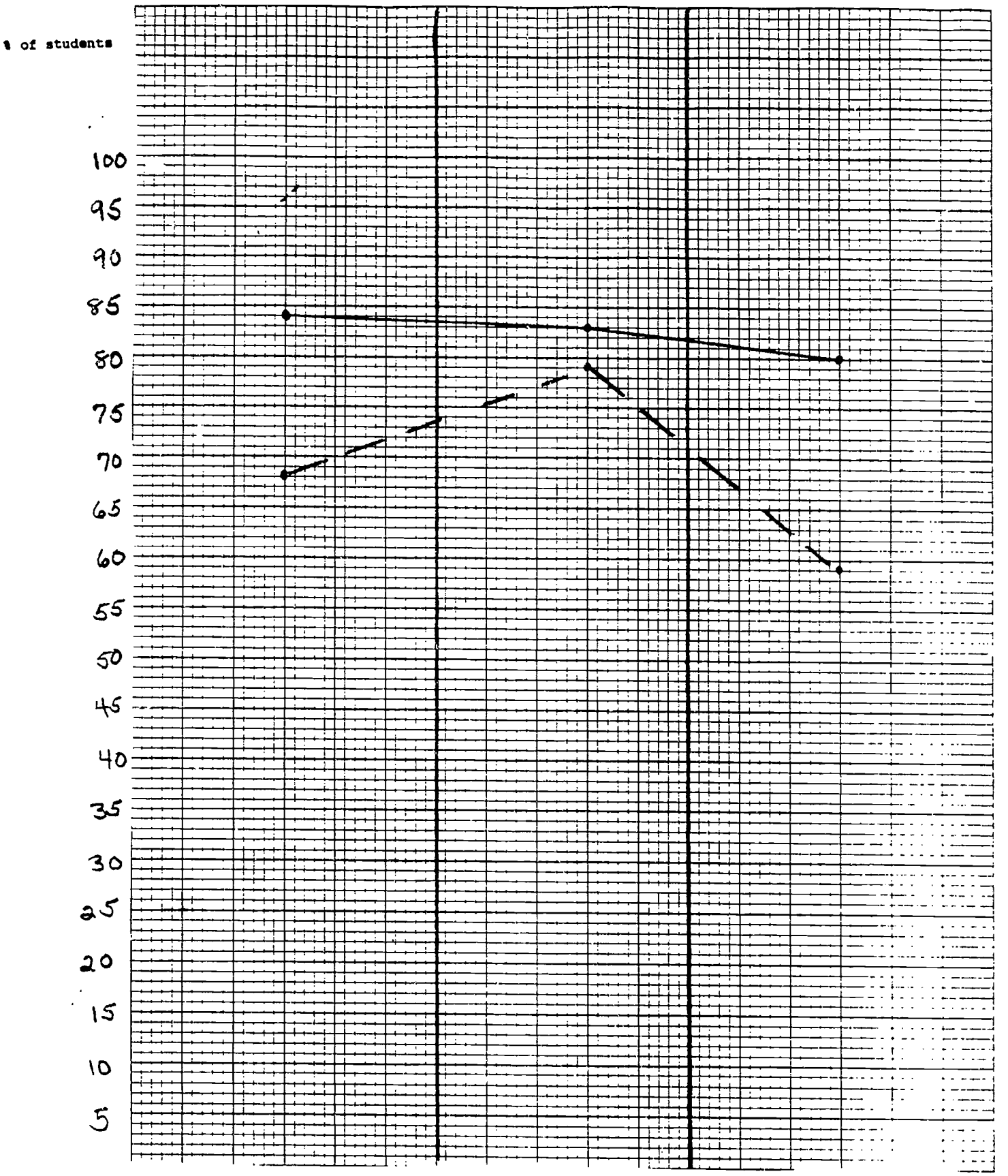
TABLE 3

16

Pre - - - -

Post ——

Academic Achievement Data for Plant Unit
Written Expression in Science Logs
(Based on permanent product rating scale)



Q1 Writes at least 4 observation sentences.

Q2 Uses at least 3 adjectives within the written passage.

Q3 Uses punctuation marks properly.

TABLE 4

ATTITUDE SURVEY

SCIENCE

Question 1 – I like science

Pre	Yes – 50%	No – 23%	Sometimes – 27%
Post	Yes – 90%	No – 0%	Sometimes – 10%

Question 2 – Science is easy for me

Pre	Yes – 23%	No – 40%	Sometimes – 37%
Post	Yes – 86%	No – 4%	Sometimes – 10%

Question 3 – Science is important to learn

Pre	Yes – 32%	No – 43%	Sometimes – 25%
Post	Yes – 82%	No – 0%	Sometimes – 18%

Question 4 – I like to write about what I learn in science

Pre	Yes – 12%	No – 45%	Sometimes – 43%
Post	Yes – 90%	No – 4%	Sometimes – 6%

Question 5 – I like to do group work during science

Pre	Yes – 42%	No – 8%	Sometimes – 50%
Post	Yes – 83%	No – 0%	Sometimes – 17%

TABLE 5-1

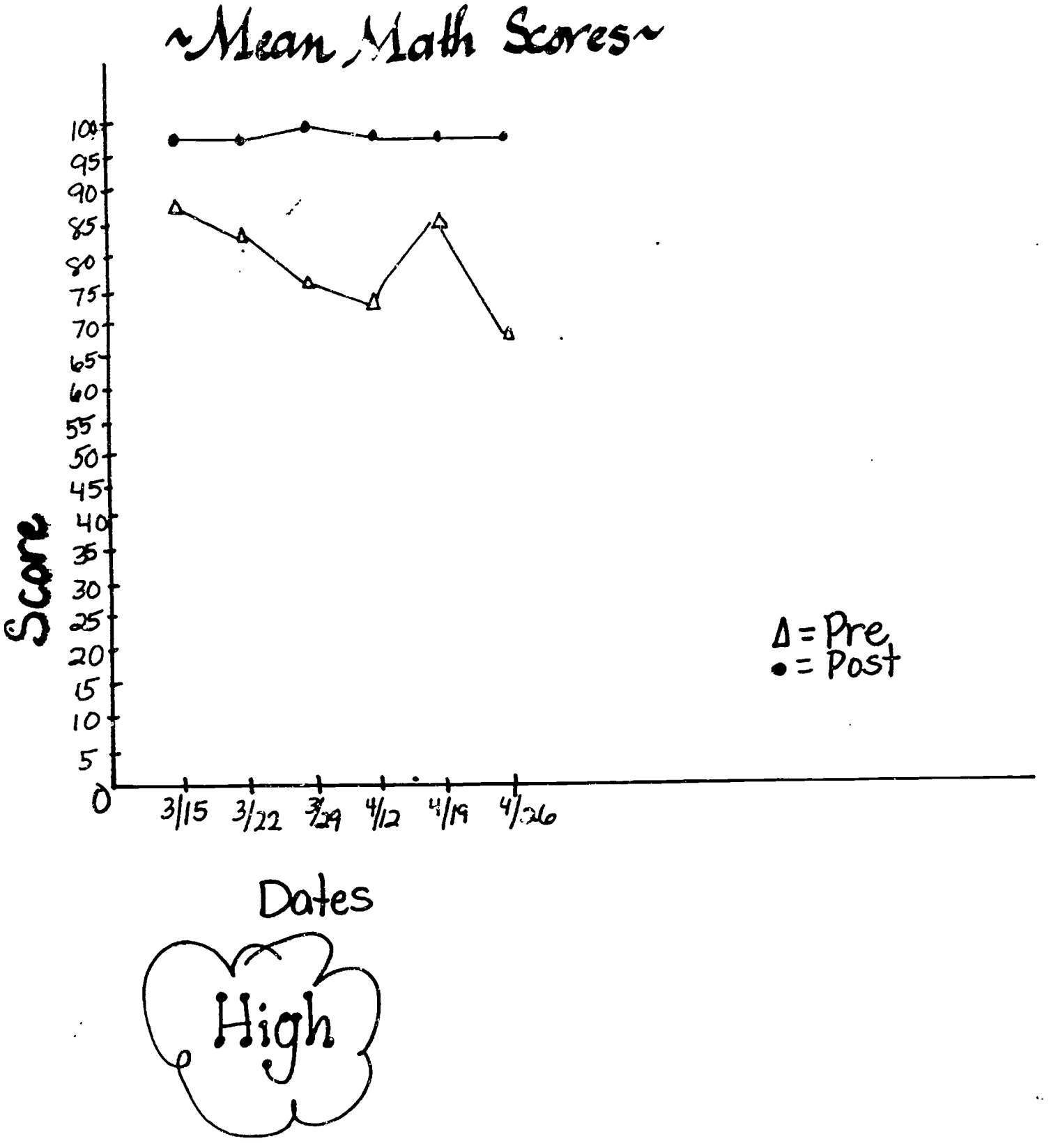
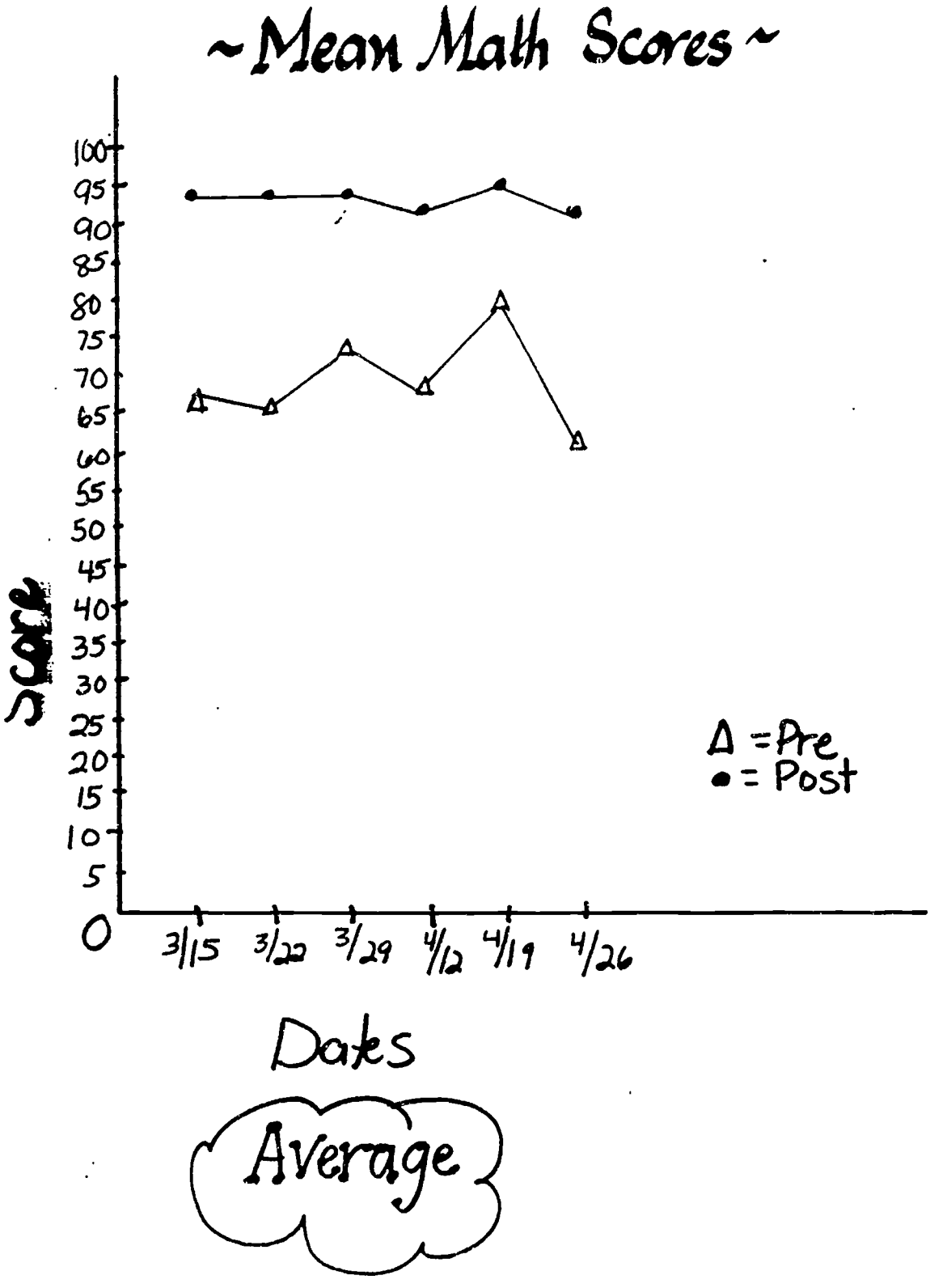
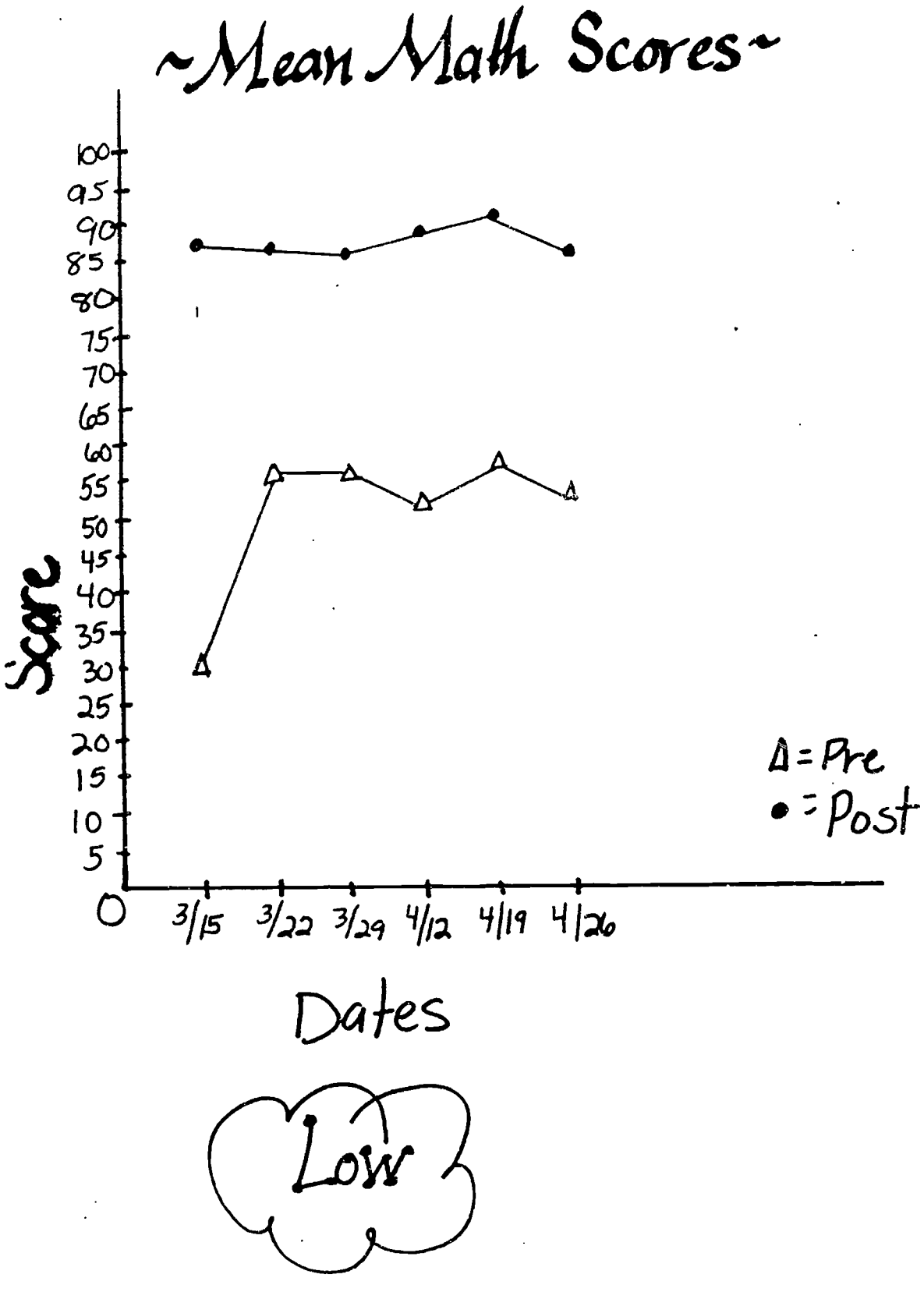

~Mean Math Scores~
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
Score
3/15
3/22
3/29
4/12
4/19
4/26
Dates
Δ = Pre
● = Post
High

TABLE 5-2

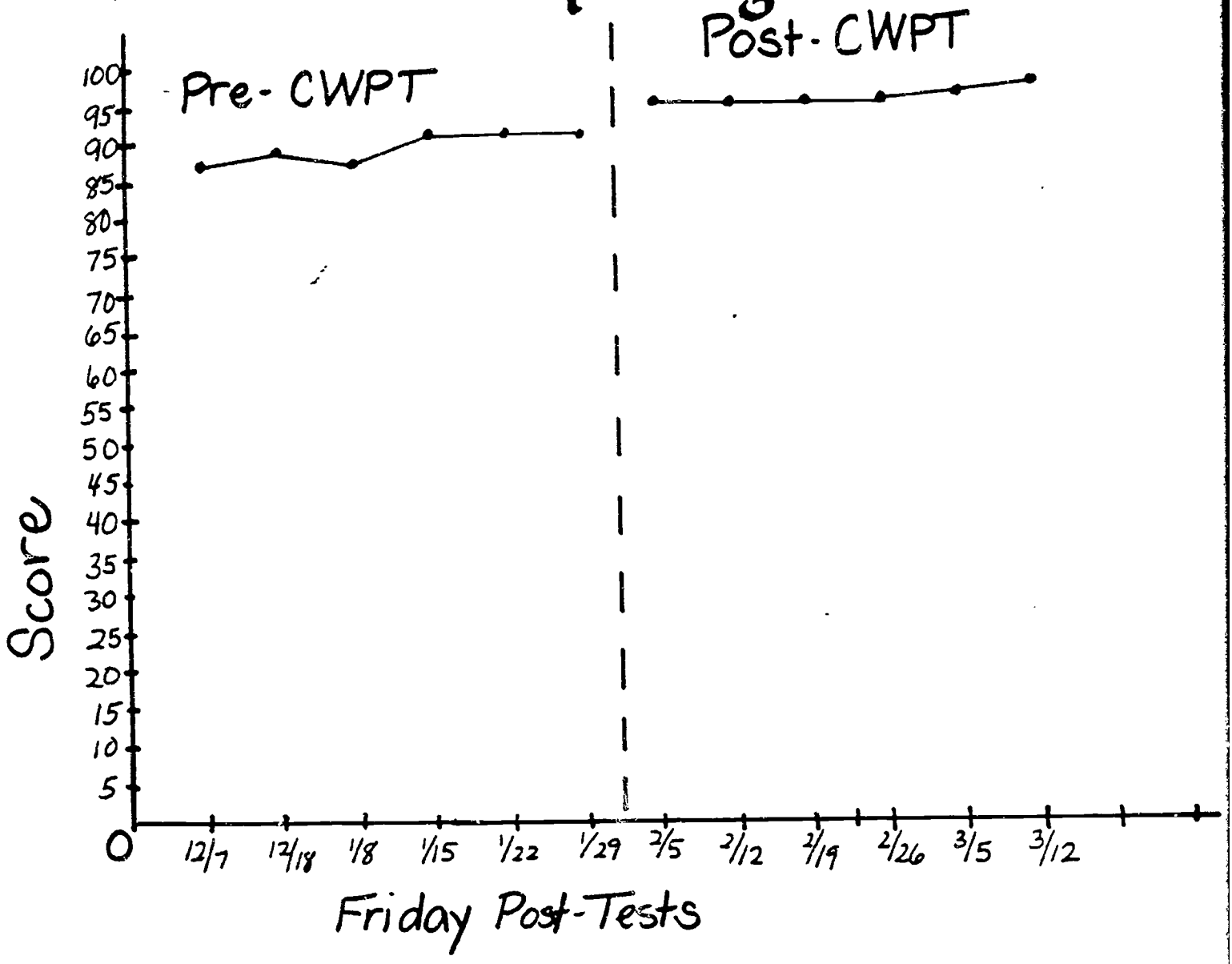

~Mean Math Scores~
Score
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
3/15
3/22
3/29
4/12
4/19
4/26
Δ = Pre
● = Post
Dates
Average


~Mean Math Scores~
Score
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
3/15
3/22
3/29
4/12
4/19
4/26
Dates
Δ = Pre
• = Post

Low

TABLE 6-1

~Mean Spelling Scores~



High

TABLE 6-2

~Mean Spelling Scores~

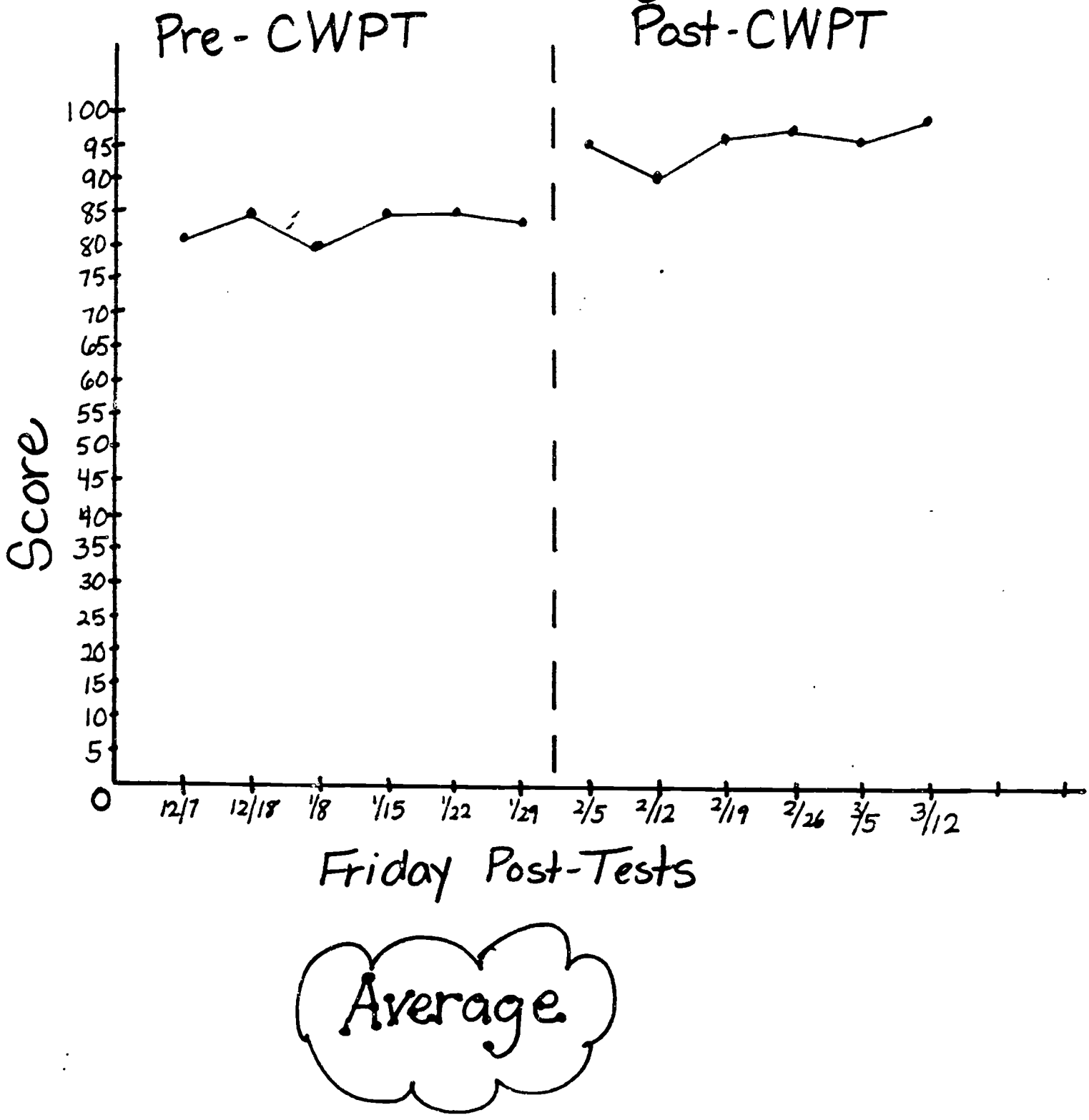


TABLE 6-3

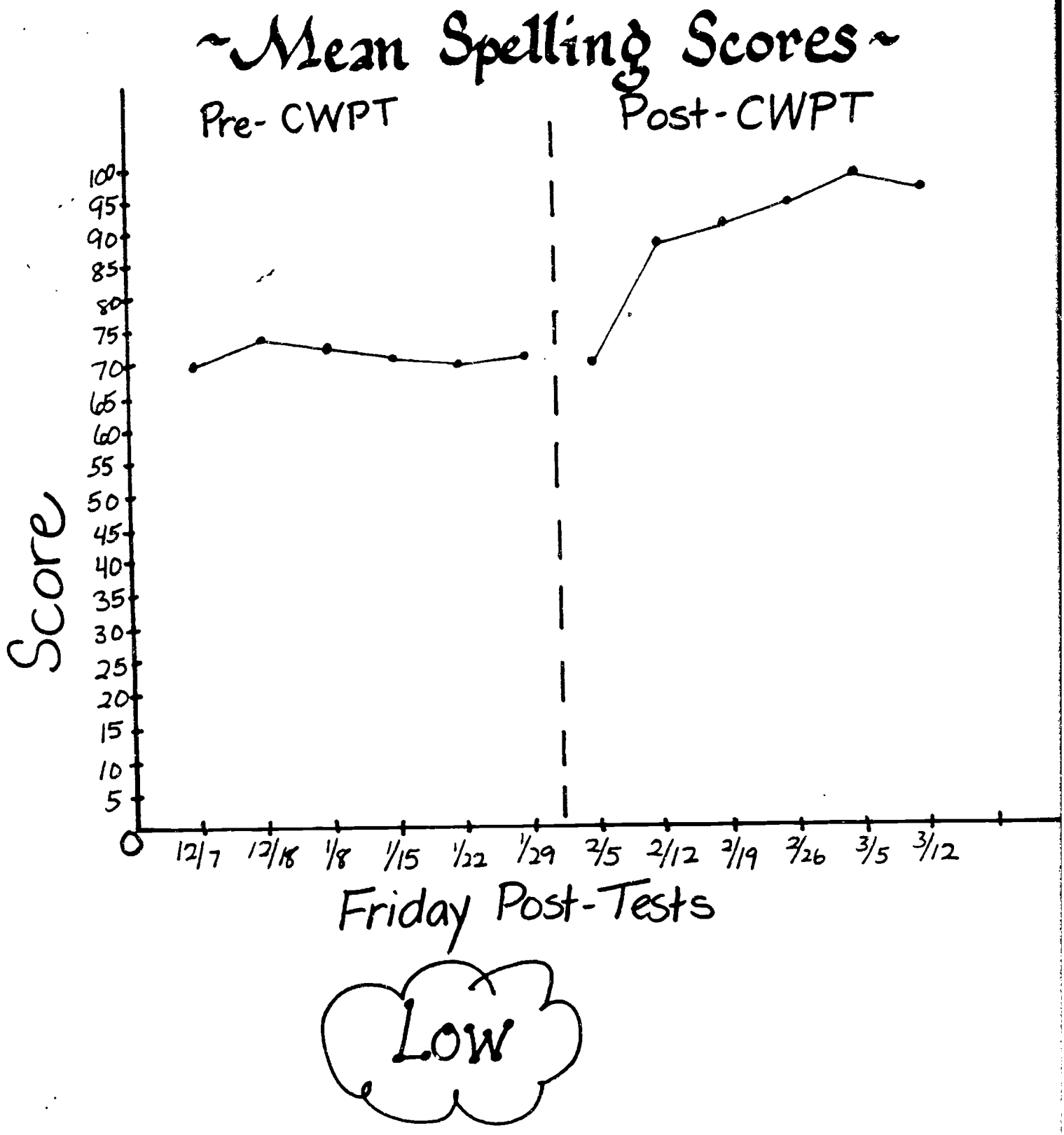
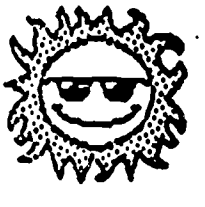

~Mean Spelling Scores~
Pre- CWPT
Post-CWPT
Score
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
12/7
12/18
1/8
1/15
1/22
1/29
2/5
2/12
2/19
2/26
3/5
3/12
Friday Post-Tests
Low

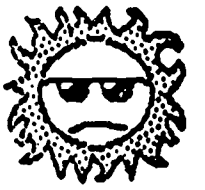
TABLE 7-1

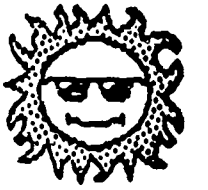
NAME:

SPELLING SURVEY

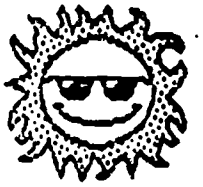
1. I like spelling.

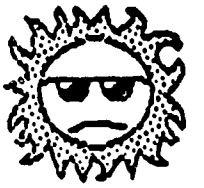

YES


NO


SOMETIMES

2. Spelling is easy for me.


YES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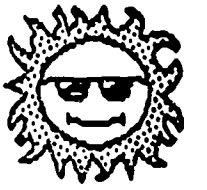
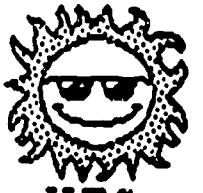
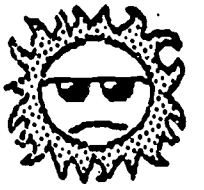

SOMETIMES

3. I can usually spell the words in stories I write.


YES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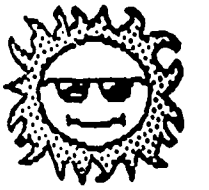
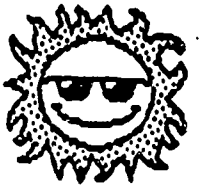
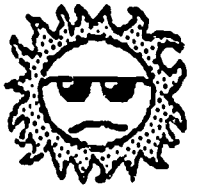
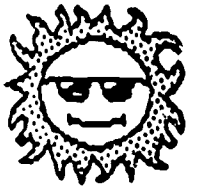

SOMETIMES

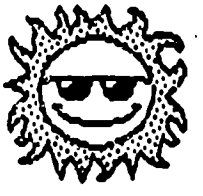
4. I enjoy taking spelling tests.

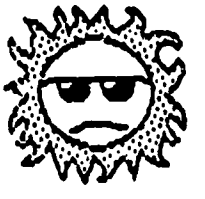

YES


NO


SOMETIMES

5. Spelling is my favorite subject


YES


NO

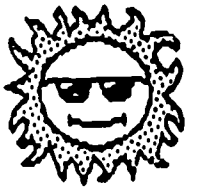

SOMETIME

TABLE 7-2

~ Spelling Attitudinal Results ~

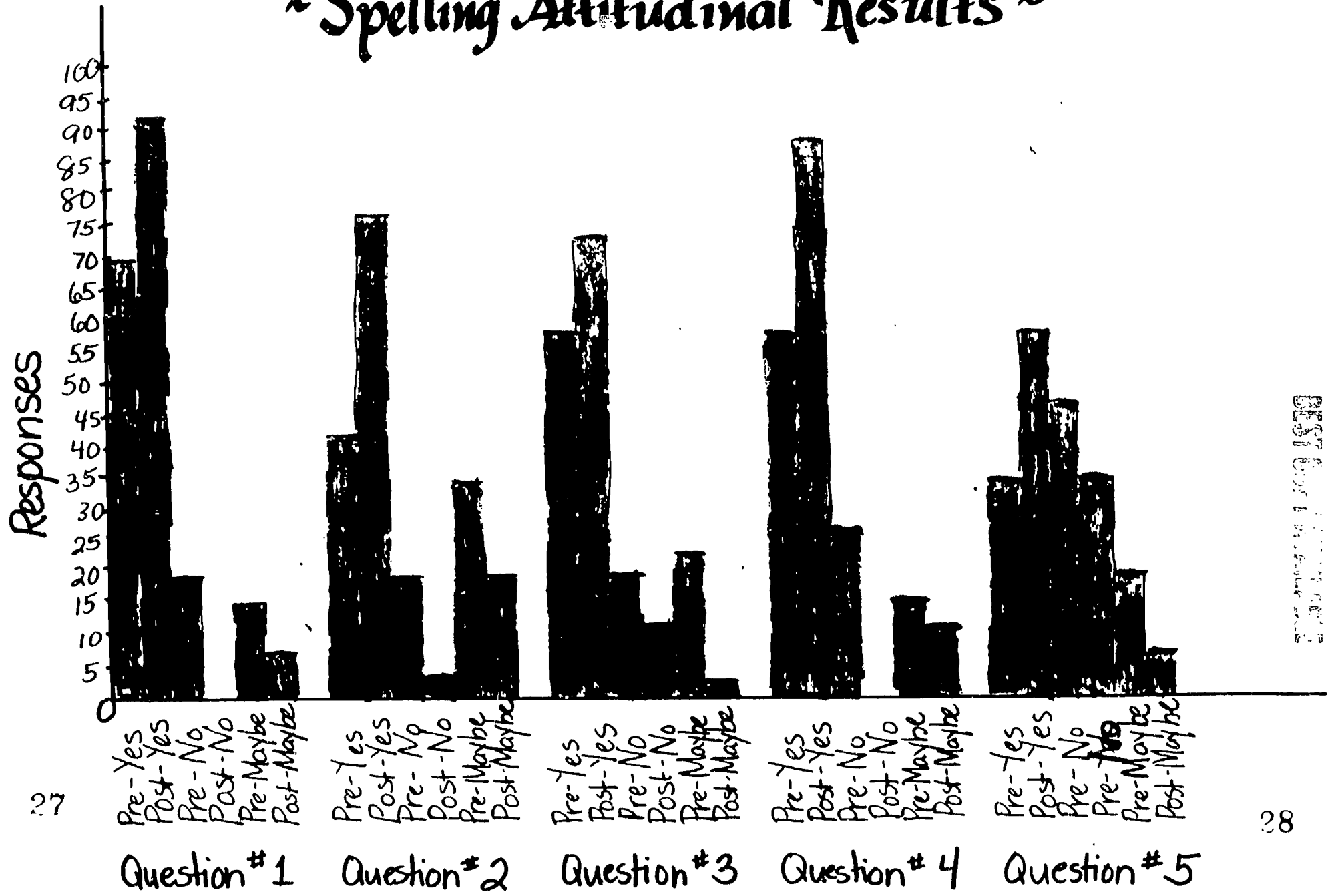


TABLE 8

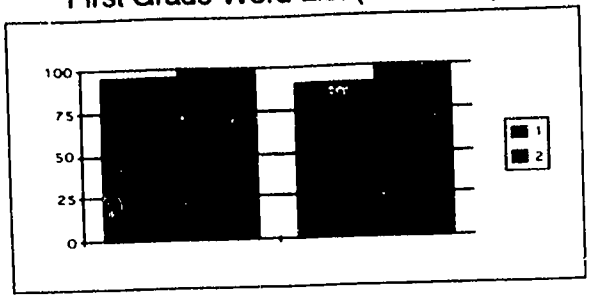
Reading Scores
Dolch Word List

1=Pre CWPT

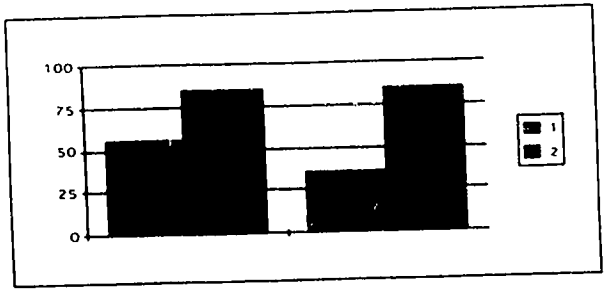
2=Post CWPT

High Achievers

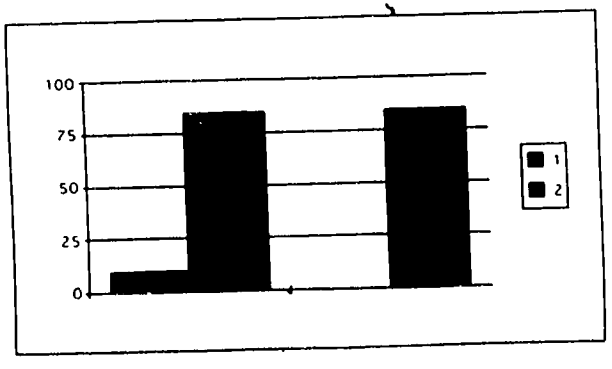
First Grade Word List (20 Words)



Second Grade Word List (20 Words)

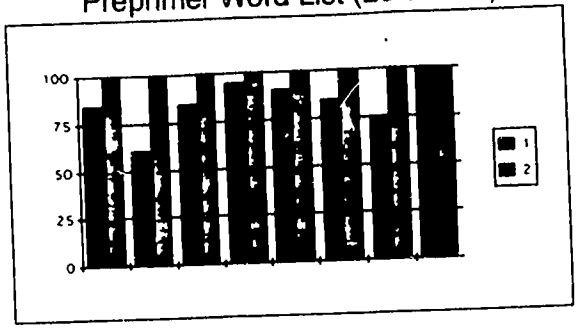


Third Grade Word List (20 Words)

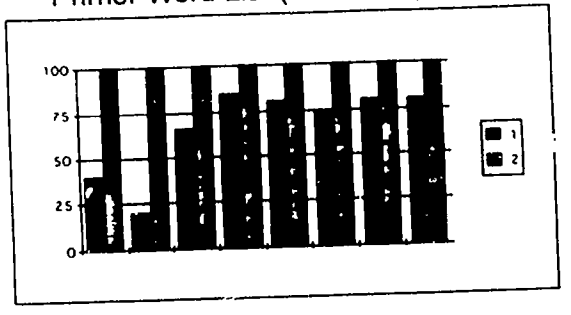


Average Achievers

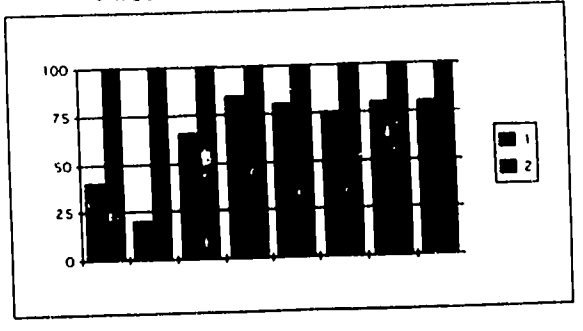
Preprimer Word List (20 Words)



Primer Word List (20 Words)

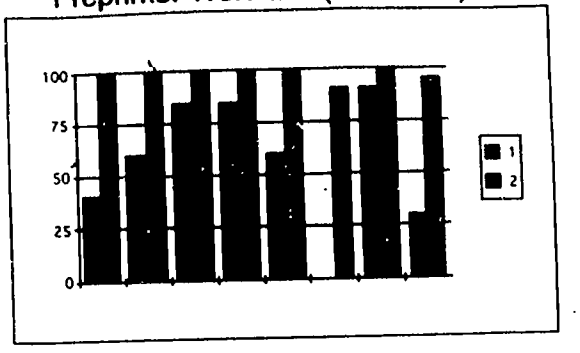


First Grade Word List (20 Words)

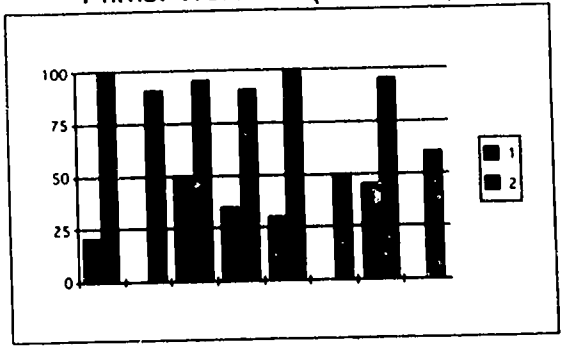


Low Achievers

Preprimer Word List (20 Words)



Primer Word List (20 Words)



First Grade Word List (20 Words)

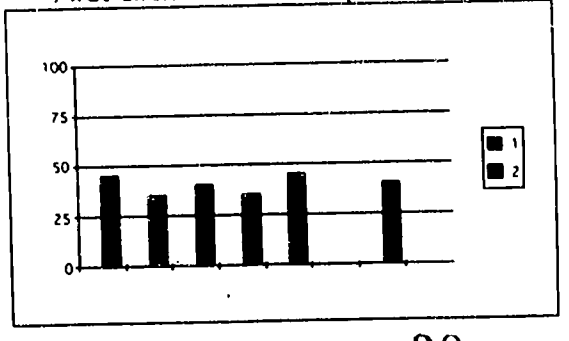


TABLE 9

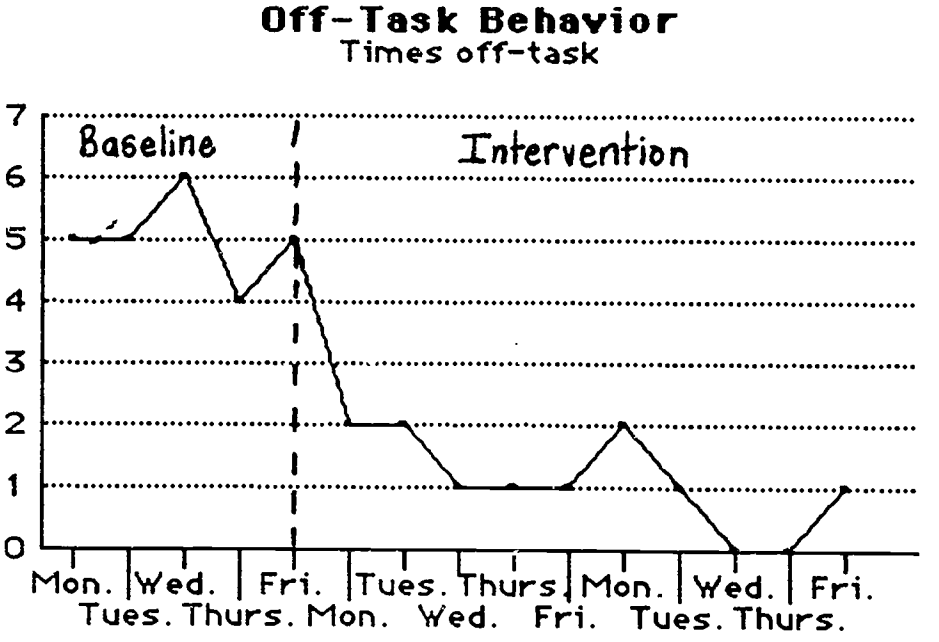

Off-Task Behavior
Times off-task
Baseline
Intervention
7
6
5
4
3
2
1
0
Mon.
Tues.
Wed.
Thurs.
Fri.
Mon.
Tues.
Wed.
Thurs.
Fri.
Mon.
Tues.
Wed.
Thurs.
Fri.

TABLE 10

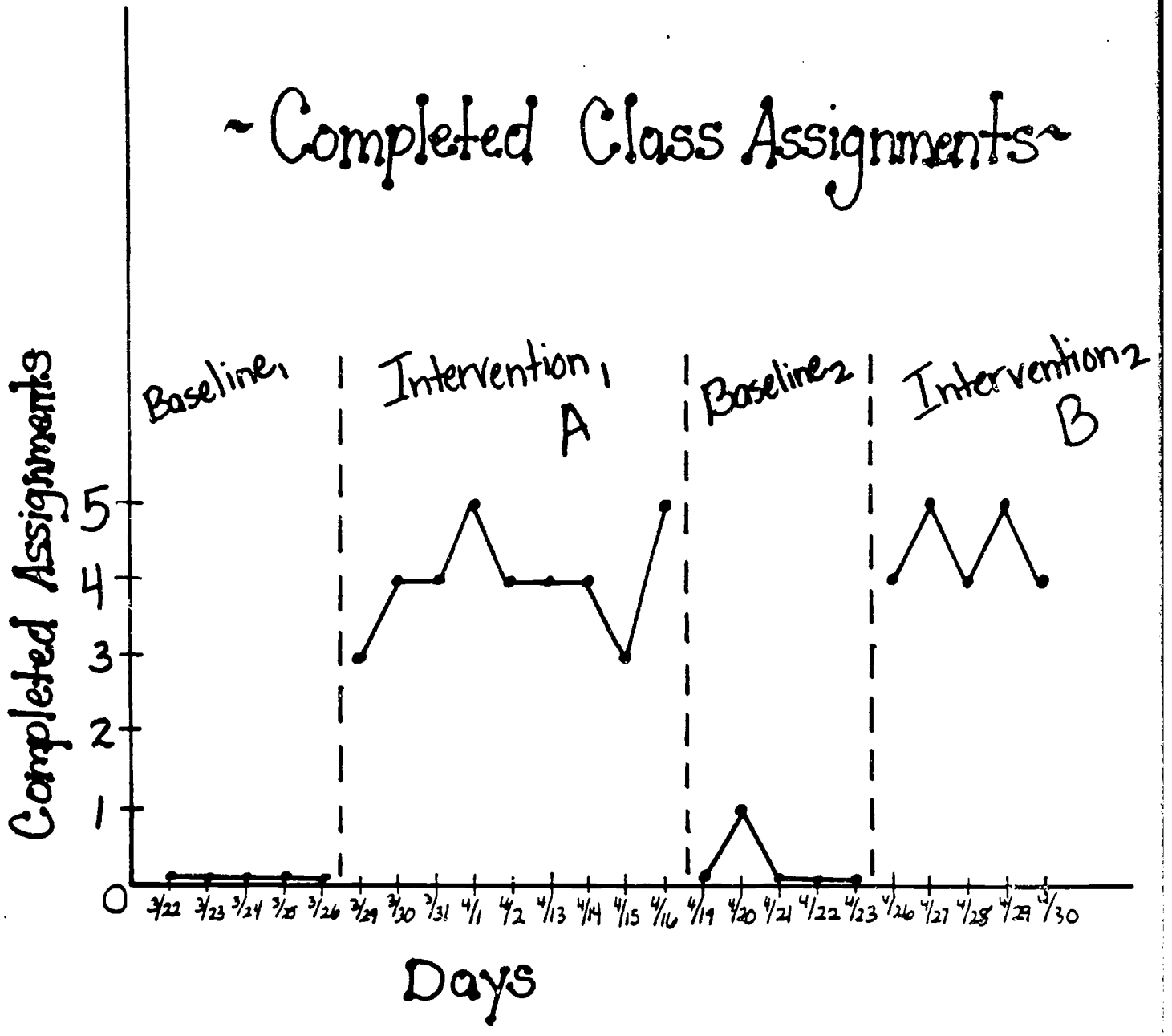

~Completed Class Assignments~
Baseline 1
Intervention 1
A
Baseline 2
Intervention 2
B
Completed Assignments
0
1
2
3
4
5
3/22 3/23 3/24 3/25 3/26 3/29 3/30 3/31 4/1 4/2 4/13 4/14 4/15 4/16 4/19 4/20 4/21 4/22 4/23 4/26 4/27 4/28 4/29 4/30
Days

TABLE 11

Number of "Stand-ups"

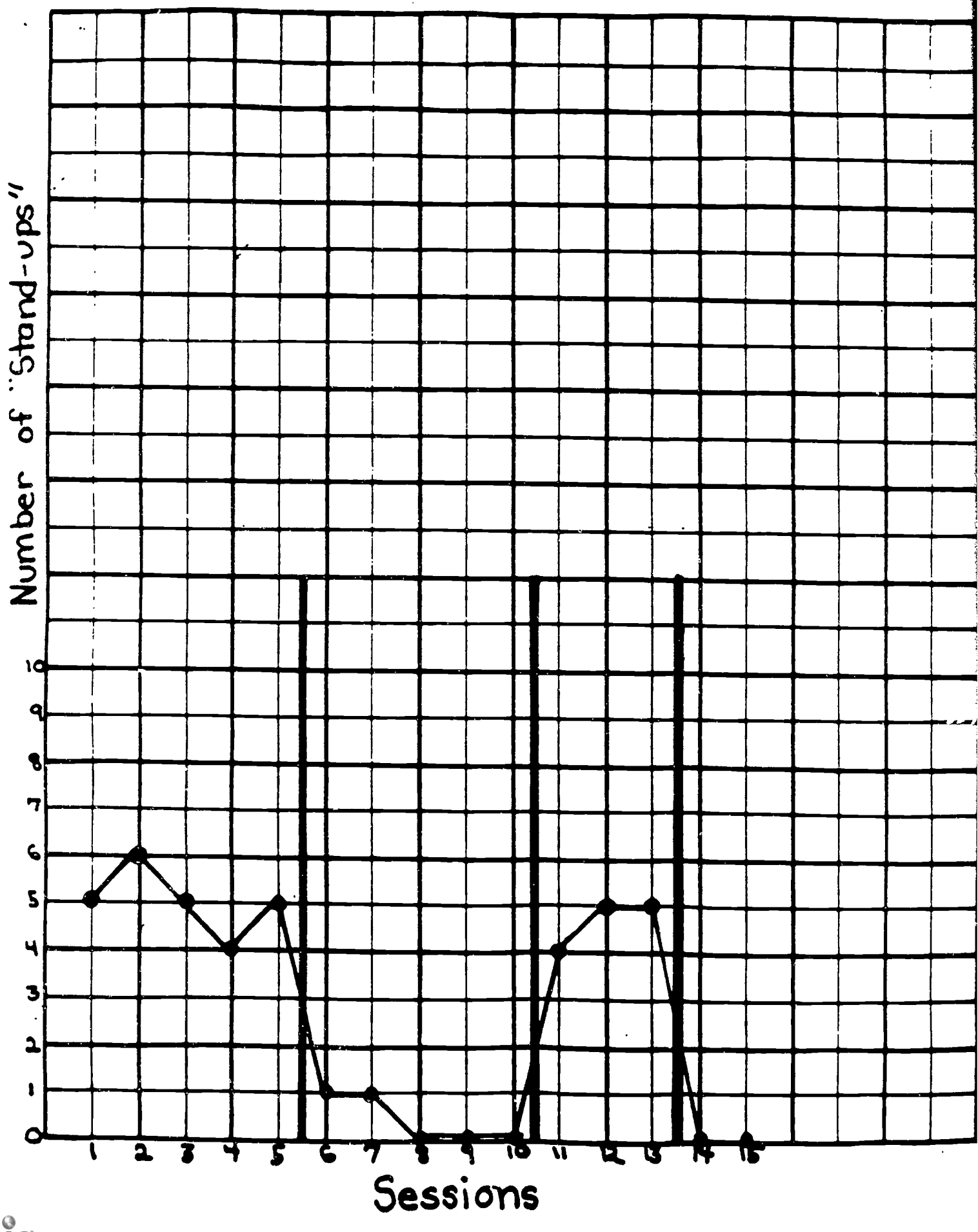
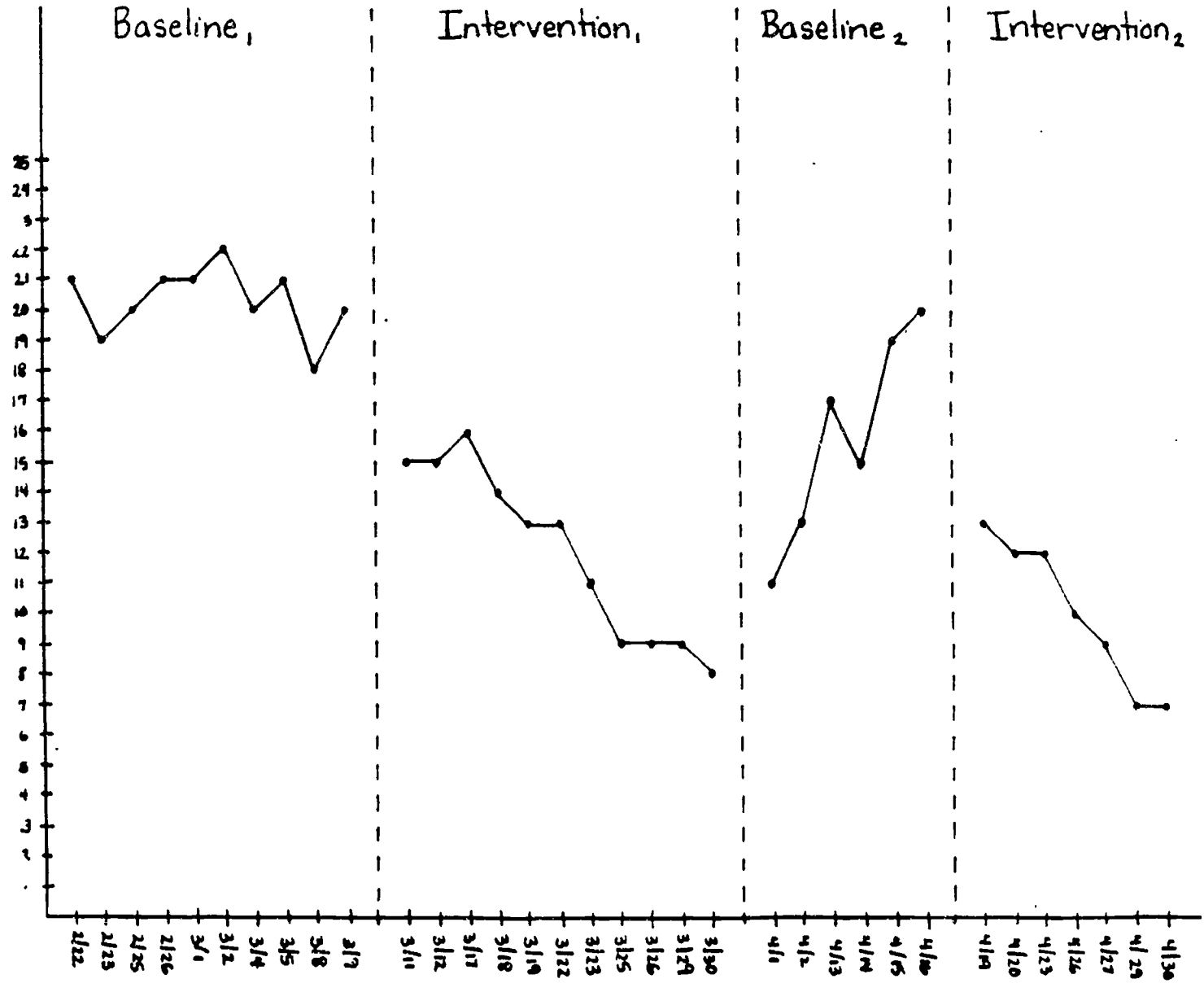


TABLE 12


Call - Outs in Science
Baseline 1
Intervention 1
Baseline 2
Intervention 2
2/22
2/23
2/25
2/26
3/1
3/2
3/4
3/5
3/8
3/9
3/11
3/12
3/17
3/18
3/19
3/22
3/23
3/25
3/26
3/29
3/30
4/1
4/2
4/13
4/14
4/15
4/16
4/19
4/20
4/23
4/26
4/27
4/29
4/30