7-1-1971

The Analysis of the Reaction Phase of Reading by Examining the Frequency of Pupil-Initiated Talk in Second, Fourth, and Sixth Grade Reading Classes as Measured by the Verbal Interaction Category System

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THE ANALYSIS OF THE REACTION PHASE OF READING BY EXAMINING THE FREQUENCY OF PUPIL-INITIATED TALK IN SECOND, FOURTH, AND SIXTH GRADE READING CLASSES AS MEASURED BY THE VERBAL INTERACTION CATEGORY SYSTEM

A Field Project

Presented to the

Department of Educational Administration

and the

Faculty of the Graduate College

University of Nebraska at Omaha

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

by

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July 1971

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ACKNOWLEDGMENTS

The writer wishes to thank his wife for all the patience and assistance she has given in the typing of this paper. Her wonderful attitude throughout the study was a real incentive for the writer.

The author also extends his appreciation to the participating teachers who willinging allowed him to gather data from their rooms for the project. The administrative personnel gave their assistance throughout the study.

Finally the writer thanks Dr. Darrell Kellams for his encouragement and professional help in organizing the work in its final form.

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CHAPTER I

INTRODUCTION

Reading is probably the most important skill taught in the elementary grades. School success and future goals hinge upon a person's ability to unlock the written code and to comprehend the meaning. From the halls of the Congress of the United States has come the "right to read" proposal. Every child has the "right to read" as guaranteed by the Fourteenth Amendment of our Constitution. Allen stated in Reading Crises: The Problem & Suggested Solution that:

> "We should immediately set for ourselves the goal of assuring that by the end of the 1970's the right to read shall be a reality for all - that no one shall be leaving our schools without the skill and the desire necessary to read to the full limits of his capability."

Cliches and other slogans often carry an emotional element of society's concern about an issue of the time. Schools have been wrestling with the problem of teaching all children to read up to their capabilities for years. Most schools use a variety of material, an eclectic

approach, to provide the proper stimuli for the development of the necessary reading skills in children. School systems across the country are constantly evaluating their reading programs to determine to what extent the programs meet the needs of children. Refinement of techniques in teaching reading are occurring in various ways. Ability grouping, interest grouping, closer examinations at reading readiness, multi-sensory approaches, and community involvement of volunteers are just a few methods schools are employing to meet the goal of the 1970's.

Most recent research in reading is focusing upon the beginning or initial reading phase. The importance of insuring success at this stage is vital. Children must be able to decode symbols before they are able to move into the more complex skills of comprehension and interpretation. There are other areas of concern also. Critical reading skills which allow children to interpret what they have read are of equal importance.

The writer, an elementary principal in the Harlan Community School System, was responsible for supervising instruction in his two elementary buildings. While carrying out this duty through classroom visitations and other more

indirect ways, the writer began to question if teaching children to read should be conducted basically in the same manner in grades one through six. As children gain reading skills through their elementary grades, should the behavior of teachers and their approach to reading change? Do educators still need to have three, or two, or one reading circle in the sixth grade with the teacher asking the questions and the children responding? Are children encouraged to react and interact with other readers about their reading assignments? Smith (1963:285) brought up the following questions:

> "Are we conducting discussions at a level which is too low, in many instances, to stimulate real thinking on the part of boys and girls? Are we, too often simply asking them to repeat, parrot-like, what is said in the book rather than guiding discussion in ways which will encourage them to probe for deeper meanings and to evaluate critically?"

Reading may be thought to be made up of three distinct acts or phases. Word recognition would be the first phase of reading, because one would need to be able to recognize the printed symbol and translate it into a recognizable sound before he could understand the reading. Comprehension or the ability to understand what the symbol means, is the second part of the total reading act. The

final phase would be the reaction phase or the ability of the reader to take his understanding and do something with it. Cushenbery (1969:2) has written: "It is vitally important that pupils REACT to what they have read in accordance with their own experiences."

It is the opinion of the writer that the reaction phase of reading should be given new attention. As the student becomes more proficient in word recognition and comprehension skills, then more time should be devoted to student reaction or the student's evaluation of the assigned reading material.

PROBLEM

If children are to progress past the stage of sounding out words and being able to understand sentence thought to the more complex skills of interpretive and evaluative thinking, then reading classes in sixth grade should differ substantially from second or fourth grade reading classes. Students should be given more time and opportunity to react and interact with one another and the teacher. Lengthier discussions should evolve with the teacher moving to the

background and encouraging readers to express their ideas, regardless of their feelings of uneasiness.

The purpose of the study is not to evaluate individual teachers and their teaching reportoire, but rather to examine the frequency of pupil-initiated talk in reading classes.

HYPOTHESIS

There is no significant difference in pupil-initiated talk in second, fourth, and sixth grade reading classes as measured by the Verbal Interaction Category System.

ASSUMPTIONS

1. Amidon's system of interaction analysis is an adequate instrument for determing the amount of pupil-initiated talk in a reading class.
2. The recorder correctly categorizes the verbal interaction that takes place in the classroom.
3. The recorder's presence will not interfere significantly in the classroom atmosphere.
4. Three visits to each classroom are samply enough to be indicative of normal reading procedure in each room.

5. The greater amount of pupil-initiated talk indicates the greater amount of pupil interactions or discussion which in turn expresses student reaction.

6. Indirect teaching techniques foster interaction among students which enable readers to react to thought and ideas.

7. As children master word analysis and comprehension skills, more time should be devoted to developing the children's interpretive skills by allowing for pupil interpretive skills by allowing for pupil interaction over common reading assignments.

8. The reaction phase of reading is extremely important in the total development of a reading program.

9. The second, fourth, and sixth grades are representative of the progression of reading skills learned in elementary schools.

DELIMITATIONS

1. The possibility exists that the teachers who are participating in the study are aware that the recorder is looking for pupil interaction and, are, therefore, more indirect during the recorder's visitations.

2. The recorder records for only ten minutes per visit so it is possible that the period of maximum interaction is not tallied.

3. The frequency of pupil-initiated talk as illustrated in areas, O, P, Q, R, S, and T on the Verbal Interaction Category System matrix is indicative directly to the true proportion of time being given in developing students reactions to their reading.

4. The study was limited to second, fourth, and sixth grades because the writer felt they were representative of the variance in reading objectives.

DEFINITION OF TERMS

Reaction Phase - This is the period of time after a reading selection in which the student discusses his ideas and thoughts with other students or teacher in order to evaluate his thoughts.

Verbal Interaction Category System - A system of verbal interaction analysis that was developed by Edmund Amidon of Temple University. The system categorizes speech into seventeen different categories.

Verbal Interaction - The verbal patterns or verbalization in any setting, whether it be teacher-initiated or pupil-initiated is considered verbal interaction.

Matrix - A matrix is a graphic presentation used to display the verbal patterns in a studied session by the classification of data on a chart of seventeen horizontal and vertical columns.

Tallies - The recorder makes a notation every three seconds to illustrate the type of verbal interaction that is taking place. Each notation, when coupled with the subsequent notation becomes a tally which will be illustrated on a matrix.

Indirect Teaching Techniques - This may be defined as the necessary behavior on the part of the teacher to guide a discussion so that the children express themselves openly and regularly with the teacher being in the role of a catalyst.

Pupil-Initiated Talk - The talk which a teacher does not solicit, in which the student brings out an idea or thought. It may be in the form of a question or statement. It may be to another student or to the teacher.

CHAPTER II

RELATED RESEARCH

As children pass through the various phases of reading, the skill becomes more complex. Teachers, as agents of education, must change methodology or approaches as children progress in their reading skills. Word recognition skills and critical reading skills represent two different phases of reading and should be taught differently. Bond and Tinker (1967:272) have written:

> "In the primary grades considerable attention must be devoted to developing word-recognition techniques and the building of sight vocabulary. As these skills are acquired, there is greater opportunity for the pupil, when he reads to concentrate on comprehension. Then with the accumulation of a richer background of reading and other experiences, with increasing maturity and improved reading proficiency during progress through the upper grades, reading comprehension gets its opportunity to become superior to listening comprehension. This is because the reader can stop, reflect, evaluate or debate, or of course reread parts of the material."

The writer believes that the basic verbal structure of a class should be significally different in second grade and sixth grade. If it is true that a sixth grade reader

should be able to stop, reflect, evaluate or debate something he has read, then the class dialogue should be structured to make this possible. Methodology should be employed to best teach the various reading skills at the different levels. Smith (1969:251) states:

> "Comprehension is a complex process, and its faces are multiple and divergent. Research on reading in depth is much too scant; the thinking skills involved are not as specifically delineated as we would like to have them; effective methodology in this area is limited."

It is interesting that Smith states that effective methodology in the area of transmitting comprehension skills is limited. It seems that the limitation may have been imposed by the teaching profession itself. Teachers may not be exploring, in the fullest, ways to communicate the skills in critical reading. Durr (1967:1) wrote:

> "The term 'critical reading' is relatively new in the teacher's lexicon. It has evolved from an increasing awareness of the importance of the reader's reacting to or thinking about ideas expressed by the writer."

Teachers, especially upper elementary teachers, must break away from many of the traditional methods of teaching reading. New attention must be given to developing critical reading skills whereby children are encouraged to react

to or think divergently about their reading assignments. How many children know how or what to question when reading? Durr (1967:2) asserted that:

> "Most pupils enrolled in the later grades of the elementary school are poorly equipped to read critically. In the first place, they have acquired certain beliefs that make them unwilling to question statements in informative material."

This fear of questioning or reacting to read material by pupils has been reinforced by teacher behavior. The teacher and book has been at the center of learning and children react or evaluate only to those items to which the teacher assigns them. If learning is a social process and children learn from their peers, then conditions should be set up in which children can react to and with other children on common reading assignments. Ziller (1969:62) pointed out that, "the process of learning to read is, from the outset, a social process." Pursuing this concept deeper, Bush and Huebner, (1970:11) stated:

> "Piaget's theory of intellectual development yields the following suggestions for teachers: The child's ideas must be harmonized with one another through social learning (equilibration theory) - children must communicate with each other."

Having children relate to one another in discussion groups may not insure correct answers and correct conclusions,

but this is due to their lack of wide experiences in areas of the reading. It does insure questioning, searching, evaluating, self-expression, and use of the critical reading process. Teachers still offer opinions, but after the children have had opportunity to express themselves. As children begin to react to one another, a spontaneous atmosphere will develop. Artley (1968:48) contended:

> "It should be pointed out that though changes taking place through reading are an individual matter they can be brought about more effectively as children respond and react to each other over material that has been read as a common experience. Each reader's reactions trigger off reactions and feelings in others."

Many teachers see themselves in a different way than the children perceive them. Most teachers realize questioning and interaction are important ingredients in effective learning atmospheres, but fail to understand that they, the teacher, do most of the talking, questioning, and interacting for the children. When silence occurs, the teacher generally blurts in with a comment rather than have an uneasy moment in the class.

The skill of encouraging class discussion is a complex one. Often the teacher must challenge the students to think, but must know intuitively when this becomes a

threatening situation. Knowing when to back off is an important skill teachers must culture. Amidon (1966:54) said:

> "Combs and Snugg hold that the genius of good teaching lies in the ability to challenge students without threatening them and that the distinction between challenge and threat lies not in what the teacher thinks he is doing, but in what the students perceive him to be doing."

Agreeing with the idea that classroom atmosphere is significant in developing dialogue between students, Gans (1968:43) pointed out:

> "The classroom atmosphere must be conducive to thinking. It must be an atmosphere in which all youngsters feel at ease, are encouraged to think for themselves, and to express their ideas even if divergent from others including the teachers, and are able to accept correction and help in thinking better."

Darling (1969:309) in commenting on some of his classroom observations suggested:

> "If the teacher-student interactions and the teacher-made tests analyzed here are representatives of reading evaluation in general (and there is no strong reason to suspect otherwise), it appears that little or nothing is being done which assesses or evaluates the feelings, emotions, or values the learner has about reading or derives from reading."

Feelings, emotions, values, and ideas that readers derive from reading are extremely important outcomes of

reading critically. Children must be taught to become questioners, evaluators, and seekers of the truth. In order to teach or transmit these skills, students must be given the opportunity for expression or reaction. Children are able to assist one another in gaining this ability by interacting with one another over common materials. Classes need to be engineered to achieve this goal. Bond (1960:215) contended that:

> "He who has learned as we call it to read without having learned to judge, discriminate, and choose has given hostages of dependence to powers beyond his control. He has prepared for himself a readiness to undergo new modes of intellectual servitude."

In analyzing the methodology of reading classes in grades 2, 4, and 6 in the Harlan Community School System, the writer chose to examine the verbal behavior of both teacher and students. As teacher methods change, so do the verbal patterns within the classroom.

The writer used the Verbal Interaction Category System as the instrument to gather data for this project. The device was developed by Amidon and is a modified version of the more familiar Flander's Interaction Analysis. It categorizes talk into seventeen different verbal categories depending upon whether it is a response or initiated speech.

The writer has used this instrument previous to this project. It was used by the recorder for a practicum during his Master Degree program. He has also demonstrated its use at several inservice education meetings.

The validity of examining speech patterns in classrooms and making subsequent judgments has been questioned. Amidon (1968:3) stated in reference to the Flanders System:

> "Although this particular approach has been used for classroom research for nearly twenty years, its use has become widespread only during the last four years. It has found its way into many different kinds of educational programs - both research and developmental. Basically, Interaction Analysis has been used to help quantify teacher verbal behavior."

Many universities are using various forms of Interaction Analysis to help student teachers. Primarily, it is a feedback technique for student teachers so that their teaching behavior may be dramatically-illustrated for self improvement. Bondi (1969:5) wrote:

> "Recently, the process of systematic observation of classroom interaction has been developed and shows great promise as a feedback mechanism. An observational system is defined here as any systematic technique for identifying, classifying, and quantifying specific teaching activities. Of the observational systems currently available, Flander's system of Interaction Analysis is probably the most widely known and used.... The results of this

> study clearly show that those student teachers who received interaction analysis feedback differed significantly from those student teachers who did not in their use of the following verbal behavior: (1) they used more praise; (2) they accepted and clarified student ideas more; (3) they used more indirect teacher talk as opposed to direct teacher talk; (4) they used more extended praise; (5) they had more extended use of student ideas; (6) they used more positive affective talk; (7) they accepted student ideas more after teacher-initiated student-talk; (8) they used more positive reinforcement after teacher initiated student talk; (9) they criticized students less; and (10) they used less lecture."

The importance of Bondi's comment is that it shows the type of feedback an interaction analysis instrument is able to give. By analyzing the matrix of a recorded session, the recorder is able to make a variety of conclusions. A quick glance of a matrix yields high frequency areas which in turn feedback the type of verbal commentary that has taken place. A great number of tallies in a teacher talk area indicates that the teacher is dominating the discussion.

A close look at the number of tallies in the areas indicating pupil-initiated talk is important when determining the freedom to question or react by students. As has been stated previously this freedom of questioning and reacting to materials is an important criterion in critical reading skills.

Hunter (1966:5) wrote:

> "In conclusion, interaction analysis is an effective feedback mechanism and teachers should have an opportunity to utilize feedback from systematic observations made to their own verbal behavior."

A copy of the Amidon system is illustrated in the Appendices for further examination.

CHAPTER III

DESIGN OF THE STUDY

PROCEDURE

A. General Design - The writer chose to study the frequency of pupil-initiated talk in second, fourth, and sixth grades in the Harlan Community Schools. Since the study focuses upon the problem of whether reading classes are handled in much the same manner by elementary teachers regardless of grade level and reading skills to be taught, an examination of pupil interaction within the classes is significant. The writer felt that second, fourth, and sixth grades were indicative of the progression of reading skills in the elementary school. First grade was not included as the beginning level to be examined because much of instruction deals with readiness activities, rather than on the word attack and comprehension skills.

Careful consideration was given when designing the field project so that the project could indeed be

helpful in inservice work in the school system. One of the major questions was how to collect data without threatening the participating teachers. Before the study was ever proposed, the teachers of second, fourth, and sixth grades were asked to help the writer in a graduate study by allowing him to visit their rooms during their reading period. The point was made clear that the writer was not evaluating their teaching, but was making a graduate study for college credit. Although the visits were to be unannounced, the teachers, all fifteen of them, consented to participate in the study.

Another consideration was to determine the number of visits per teacher that would be necessary to make the study valuable. To alleviate the chance of recording when a teacher was holding an unusual session, the author decided that three visitations per teacher were needed for a valid comparison of pupil-initiated talk at the three grade levels.

Length of recording verbal interaction at each recording session was another decision to be faced by the author. Since frequency of pupil-initiated talk correlates directly to the length of recording interaction, it was decided that the length of actual recording should be a set time limit

or set number of tallies established for each session. The writer developed a tally sheet which would record 190 tallies per session. The recorder began categorizing the classroom interaction when he thought it lent itself to freer dialogue or preferably when discussing a reading selection. This meant that on some visits, the recorder would observe a class for twenty minutes or more before a time of recording would begin. Once the recorder began to categorize speech, he would make it continuous for the full 190 tallies.

The writer gathered all of the data within an eight week period. It was felt that the writer should visit all teachers once before the second visitation and this was true between the second and third visitations. This would help to make the comparison of grades more accurate because the skill of the recorder was better as the study progressed.

B. Population - The population for the study was all of the second, fourth and sixth grade classes in the Harlan Community School System.

SOURCES OF DATA

A. Instrumentation - The instrument used for the collection of data for this field project was Verbal Interaction

Category System, as illustrated in Table 6 of the Appendices. This device categorizes speech into seventeen different categories. By examining the frequency of tallies in different areas on the matrix, the writer was able to make judgment concerning classroom atmosphere, teacher directness, or indirectness, and quantify speech into patterns. Table 7 of the Appendices will explain the areas of the matrix and what they are able to illustrate.

B. Method of Gathering Data - As has been stated previously, speech is categorized into one of seventeen different categories. The recorder makes notations, which are his judgment of what category the talk best fits, every three seconds. If a change in category takes place before the three second interval, the recorder marks this change.

For each class visitation, the recorder tallies the interaction based upon appropriateness of interaction for approximately ten minutes. This meant that for each visit the recorder had 190 tallies. By the number of tallies remaining constant for each visit and the visitations remaining constant for each grade level, the frequency of pupil-initiated talk was able to be compared accurately.

Each of the forty-five class recording sessions will be illustrated on matrices in Appendix B. Special attention will be given to Areas O, P, Q, R, S, and T on the matrix for these mirror the frequency of pupil-initiated talk.

C. Analysis of Data - After the writer recorded the tallies for each visit on the matrices, he computed the number of marks which fell in Areas O, P, Q, R, S, and T by teacher and grade level. Since the scores for each teacher and grade level were independent of other scores, the writer utilized a test of analysis of variance by which to test the hypothesis for this field project. The writer was interested in significant differences at the .05 level and the .01 level so that both were computed.

In addition to the analysis of variance test which furnished the over-all test of significance of the differences among means, the t test which is used to test the separate difference was calculated. All of the above data will be included in Chapter IV.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The hypothesis for the field project was that there was no significant difference in pupil-initiated talk in second, fourth, and sixth grade reading classes. The instrument used to measure the frequency of pupil-initiated talk was the Verbal Interaction Category System. The purpose of questioning the frequency of pupil-initiated talk was the premise that as children progress through the spectrum of reading skills, the basic verbal behavior of both teacher and pupil should change.

The author became concerned as he supervised instruction in his elementary buildings that teachers regardless of grade level taught reading in much the same manner. There appeared to be very little spontaneous reaction to reading that was assigned during the reading period. The review of stories seemed to be dominated by the teacher and the questions were narrow without much of a chance to react to the material.

With these thoughts in mind, the writer designed this field project for the purpose of feedback to his fellow teachers. In the subsequent pages the data of this study will be viewed.

Areas O, P, Q, R, S, and T are the areas on the matrix that indicate a particular type of pupil-initiated talk. The writer categorized talk for approximately ten minutes in each of the five classes in second, fourth, and sixth grades. Each teacher was visited three times so that the data for this study was collected by forty-five classroom visitations.

After each recording session the writer graphed the information he had obtained onto the Verbal Interaction Category matrix. He then counted the number of tallies that were located in areas O, P, Q, R, S, and T on the matrix. For the purpose of this study, the writer was only interested in the frequency of tallies found in the above areas.

In order to determine significant difference between three independent groups or grade levels, an analysis of variance was used. In Table 1 we find the scores of tallies listed by grades that were discovered in areas O, P, Q, R, S, and T. There are fifteen scores under each grade

indicating the three visits per each five teachers per grade level. It is easily recognized from Table 1 that the pupil-initiated talk did increase as the children developed their reading skills.

For computational purposes, the sums for each grade, means for each grade, grand sum and general mean are figured in Table 1. Remembering that there were a possible 190 tallies for each recording session, one can see that the average for second grade 13.87 is not large.

Table 1

A Comparison of Frequency of Pupil-Initiated Talk in Second, Fourth, and Sixth Grade Reading Classes

2^{nd}	4^{th}	6^{th}
10	14	8
13	20	51
38	36	56
4	30	15
9	15	21
6	38	13
6	33	29

Table 1 (continued)

	2nd	4th	6th	
	44	6	23	
	14	37	30	
	23	7	47	
	3	37	32	
	7	30	49	
	17	23	62	
	3	11	33	
	11	20	49	
Sum's	208	357	518	Grand Sum - 1083
Mean's	13.87	23.80	34.53	Gen. Mean - 24.07

The next few steps necessary to determine whether a significant difference existed between the studied grades in pupil-initiated talk is found in Table 2. These steps were helpful in getting figures that could be plugged into formulas later on in the process.

Table 2

Calculation of Sums of Squares

Step 1. Correction term $(C) = \frac{(1083)^2}{45} = 26,064.2$

Step 2. Total Sum of Squares

$= (10^2 + 13^2 + \ldots + 33^2 + 49^2) - C$

$= 37,217 - 26,064.2 = 11,152.8$

Step 3. Sums of Squares among Means of 2nd, 4th, & 6th

$= \frac{(208)^2 + (357)^2 + (518)^2}{45} - C$

$= \frac{268,324 + 127,449 + 43,264}{15} - 26,064.2$

$= 29,269.13 - 26,064.2 = 3204.93$

Step 4. Sum of Squares within Conditions of 2nd, 4th, & 6th

$=$ Total SS - Among Means SS

$= 11,152.8 - 3,204.93$

$= 7947.87$

Table 3 summarizes the analysis of variance. The variance ratio (F) in this study is 8.47 and the degrees of freedom (df) are 2 for the numerator (df_1) and 42 for the

denominator (df_2). By examining a table which gives the variance ratio, the writer discovered that an F of 3.22 is significant at the .05 level and an F of 5.15 is significant at the .01 level. These entries mean that for the given df's, variance ratios or F's of 3.22 and 5.15 can be expected once in 20 and once in 100 trials, respectively, when the null hypothesis is true. Since the variance ratio for this field project is larger than the .01 level, it would occur less than once in 100 trials by chance. The hypothesis is rejected and the writer concludes that the pupil-initiated talk does differ significantly in reading classes at the second, fourth, and sixth grades.

Table 3

Summary: Analysis of Variance

Source of Variation	df	Sums of Squares	Mean Square (Variance)
Among the means of conditions	2	3204.93	1602.47
Within Conditions	42	7947.87	189.23
	44	11165.80	

$F = \frac{1602.47}{189.23} = 8.47$

$df_1 = 2$
$df_2 = 42$
F at .05 = 3.22
F at .01 = 5.15

F furnishes a comprehensive or over-all test of the significance of the differences among means. A significant F does not tell the reader which means differ significantly, but that at least one is reliably different from some others. As has been concluded, there is a significant difference between grade levels in pupil-initiated talk in reading classes, the writer decided to test the separate differences by the t test.

The best estimate one is able to make of the uncontrolled variability arising from individual differences is given by the standard deviation (SD) of 15.75. Table 4 illustrates the basis of finding the standard deviation.

Table 4

The Calculation of SD for Field Project

(1) Scores	(2) Midpoints	(3) f	(4) fX	(5) x	(6) fx	(7) fx^2
60-64	62	1	62	+38	38	1444
55-59	57	1	57	+33	33	1089
50-54	52	1	52	+28	28	784
45-49	47	3	141	+23	69	1587
40-44	42	1	42	+18	18	324

Table 4 (continued)

(1) Scores	(2) Midpoints	(3) f	(4) fX	(5) x	(6) fx	(7) fx^2
35-39	37	5	185	+13	65	845
30-34	32	6	192	+ 8	48	384
25-29	27	1	27	+ 3	3	9
20-24	22	6	132	- 2	-12	144
15-19	17	3	51	- 7	-21	147
10-14	12	7	84	-12	-84	1008
5-9	7	7	49	-17	-119	2023
0-4	2	3	6	-22	-66	1452
		N = 45	$\sqrt{1080}$			$\sqrt{11240}$

$$SD = \sqrt{\frac{\Sigma fx^2}{N}} = \sqrt{\frac{11240}{45}} = \sqrt{249.77}$$

$$SD = 15.87$$

The standard deviation was needed to calculate the tests of differences by use of t. The purpose of this test is to isolate each grade level in determining the variance

of difference. Table 5 shows the method by which the author concluded that the difference between the second and sixth grade reading classes was greatest at 20.66. The difference is significant at both the .05 level and .01 level. The difference between the second and fourth grades was 9.93 and the difference between the fourth and sixth grades was 10.73. This does not qualify for a significant difference because a difference of 11.76 is needed at the .05 level and 15.71 at the .01 level.

The writer concludes that even though the differences was close to 11.76 for the comparison of fourth grade to sixth and second grade to fourth, the difference is not conclusive. The apparent reason the null hypothesis was not true was because of the great difference of pupil-initiated talk between second and sixth grades. The test of analysis of variance did not break down the significant difference by grade levels. As a result, if the writer did not compute the t test, the reader might conclude that a significant difference did, indeed, exist between second and fourth grades and fourth and sixth grades. The t test illustrates this to be wrong.

Table 5

Tests of Difference by Use of t

For df = 42 t .05 = 2.02

t .01 = 2.70

$$SE_m = \frac{SD_w}{\sqrt{N}}$$

$$= \frac{15.87}{3.87} = 4.1$$

$$SE_d = \sqrt{4.1^2 + 4.1^2}$$

$$= \sqrt{33.62}$$

$$= 5.82$$

D .05 = 2.02 x 5.82 = 11.76

D .01 = 2.70 x 5.82 = 15.71

Largest difference between 2nd and 6th grades = 20.66

Smallest difference between 2nd and 4th grades = 9.93

1 difference of significance at .01 level

1 difference of significance at .05 level

As has been mentioned previously, the hypothesis for this field project was proved false. There was a significant difference of pupil-initiated talk at the second, fourth

and sixth grade. There is a very strong significant difference between the second and sixth grades.

It was the writer's observation while recording and categorizing the sessions for this study that there was in reality, little student interaction with fellow students. Most of the pupil-initiated talk was directed toward the teacher in expressing an idea or asking a question. Spontaneous interaction or reaction to stories was observed only on a couple of occasions. It was surprising to the writer in analyzing the data to discover that the older children were initiating comments as frequently as the data indicated.

CHAPTER V

SUMMARY AND CONCLUSION

As has been presented in the previous chapter, the null hypothesis of this field project was proved false. It was discovered through a statistical analysis that pupil-initiated talk in reading classes does, indeed, differ at the various grades. As children progress through the elementary grades, there is more pupil-initiated talk.

The writer strongly believes that this is a good development. As children gain word attack skills and are able to read independently, they need to expand their thoughts by bringing in their own experiences in evaluating what they have read. Students need to interact with one another over their reading material to learn that people are able to read the same material and come away with different concepts.

Teachers need to engineer their reading periods, especially in the upper grades, in using group discussions, debates, and other vehicles which encourage children to think

critically. Teachers need to step to the background and nurture student leadership in evaluating ideas. As teachers begin to talk less, children will take over the teacher role in discussions and will initiate talk one to another. The best method in teaching someone to do something is to let them experience it for themselves. If the role of the school is to help children not only read, but also interpret what they have read, in terms of their own experiences and values, then they must experience judging, discriminating, and choosing for themselves.

The study revealed to the writer that children do initiate more talk in the upper grades. It was apparent from the visitations that intermediate age children enjoy sharing experiences which are similar to those in stories they have read. This natural willingness to share ideas with their peers should be capitalized upon in the area of reading.

Area S of the matrix indicates pupil initiated statements followed by student response statements. As children are given more responsibility in the discussion of reading material and teachers become guides, the frequency of tallies in Area S would increase. The study has already pointed out that the second, fourth, and sixth grades tallied

208, 357, and 518 marks in Areas O, P, Q, R, S, and T. The writer narrowed the perspective of the study to Area S and discovered only 13, 24, and 28 tallies in second, fourth, and sixth grades. This is approximately 6% of the total number of tallies to be found in the above areas.

Reasons for the limited number of notations in Area S could be many. The author thinks that even though teachers in the upper grades solicit more pupil-initiated talk, this talk is directed to the teacher. The teacher continues to fill the role of being the hub of all discussions. The writer observed very little of the pupil-initiated talk being directed to other pupils. Most of the talk was directed back to the teacher who then referred it to the class who then referred it to the teacher who then continued the line of communication back to the class. The fallacy with this type of classroom engineering is that many children do not feel comfortable to share experiences in total group situations or when it must be transmitted through the teacher. Another consideration is that students realize that their grade is contingent upon the comments they make. As a result, some students begin playing the game of please the teacher for your grade depends upon it.

Another significant concept of the study was the need and usefulness of instruments like the Verbal Interaction Category System as a feedback mechanism. The hypothesis of the writer was originated because of classroom supervision. It was believed that reading was not being taught differently at the various levels in the elementary school. The author was concerned over the lack of pupil-initiated comment. The Verbal Interaction Category System in an objective manner illustrated that there was, indeed, a significant difference in pupil-initiated talk as pupils progressed through school. It further demonstrated that most of the pupil-initiated talk was directed to the teacher. The writer was not able to make this distinction without the assistance of an objective systematic method of analyzing verbal behavior.

The need for teachers to become more cognizant of the verbal interaction in the classroom is very important. Many times the way in which students perceive their teachers and the manner in which teachers perceive themselves is totally different. The advantage of a verbal interaction analysis system is that the teacher is able to evaluate their own behavior in light of the purpose of the activity.

The results of this field project will be utilized in some form of inservice education. The author believes that school systems throughout the country must begin to become active participants in educational research. Field projects of this nature are practical and useful in the refinement of education on a local level.

BIBLIOGRAPHY

BIBLIOGRAPHY

Amidon, E.J., Kies, K.M. and Palisi, A.T. 1966, "Group Supervision: A Technique for Improving Teacher Behavior" National Elementary Principal, XLV (April, 1966).

Amidon, E.J. 1968, A Workshop in the Analysis of Teaching; ERIC - EDO 31435.

Artley, A.S. 1968, "But - Skills Are Not Enough," Reading and the Elementary School Child, ed. H.F. Darrow and V.M. Howes (New York: The MacMillan Company).

Bond, G.L. and Wagner, E.B. 1960 Teaching the Child to Read, (New York: The MacMillan Company).

Bondi, J.C. 1969 Feedback In The Form of Printed Interaction Analysis Matrices as a Technique for Training Student Teachers; ERIC - EDO 28115.

Bush, C.L. and Huebner, M.H. 1970 Strategies For Reading In The Elementary School, (New York: The MacMillan Company).

Cushenbery, D.C. 1969 Reading Improvement in the Elementary School, (West Nyack, New York: Parker Publishing Company, Inc.).

Darling, D.W. 1969 "Evaluating the Affective Dimension of Reading," Elementary Reading Instruction, ed. A. Beery, T.C. Barrett, and W.R. Powell (Boston: Allyn and Bacon, Inc.).

Gans, R. 1968 "Greater Reading Power Needed Today," Reading and the Elementary School Child, ed. J.F. Darrow and W.M. Howes (New York: The MacMillan Company).

Hunter, E. 1966 The Verbal Interaction Category System (VICS) A pamphlet sent by Temple University.

Smith, N.B. 1963 "Levels of Discussion In Reading", Readings On Reading Instruction, ed. A.J. Harris (New York: David McKay Company, Inc.).

Ziller, R.C. 1969, "The Social Psychology of Reading", Elementary Reading Instruction, ed. A. Beery, T.C. Barrett, and W.R. Powell (Boston: Allyn and Bacon, Inc.).

APPENDICES

Table 6

The Verbal Interaction Category System (VICS)

Teacher-Initiated Talk	1. Gives Information or Opinion: presents content or own ideas, explains, orients, asks rhetorical questions. May be short statements or extended lecture.		
	2. Gives Direction: tells pupil to take some specific action; gives orders, commands.		
	3. Asks Narrow Questions: asks drill questions, questions requiring one or two word replies or yes-or-no answers; questions to which the specific nature of the response can be predicted.		
	4. Asks Broad Questions: asks relatively open-ended questions which call for unpredictable responses; questions which are thought-provoking. Apt to elicit a longer response than 3.		
Teacher Response	5. Accepts:	(5a)	Ideas: reflects, clarifies, encourages or praises ideas of pupils. Summarizes or comments without rejection.
		(5b)	Behavior: responds in ways which commend or encourage pupil behavior.
		(5c)	Feeling: responds in ways which reflect or encourage expression of pupil feelings.

Table 6 (continued)

Teacher Response	6. Rejects:	(6a)	Ideas: criticizes, ignores or discourages pupil ideas.
		(6b)	Behavior: discourages or criticizes pupil behavior. Designed to stop undesirable behavior. May be stated in question form, but differentiated from category 3 or 4, and from category 2, Gives Direction, by tone of voice and resultant effect on pupils.
		(6c)	Feeling: ignores, discourages, or rejects pupi expression of feelings.
Pupil Response	7. Responds to Teacher:	(7a)	Predictably: relatively short replies, usually which follow category 3. May also follow category 2, i.e. "David, you may read next."
		(7b)	Unpredictably: replies which usually follow category 4.
	8. Responds to Another Pupil: Replies occurring in conversation between pupils.		
Pupil-Initiated Talk	9. Initiates Talk to Teacher: Statements which pupils direct to teacher without colicitation from teacher.		
	10. Initiates Talk to Another Pupil: statements which pupils direct to another pupil which are not solicited.		

Table 6 (continued)

Other	11. Silence: pauses or short periods of silence during a time of classroom conversation. Z. Confusion: considerable noise which disrupts planned activities. This category may accompany other categories or may totally preclude the use of other categories.

Table 7

A Description of the Areas on the Matrices

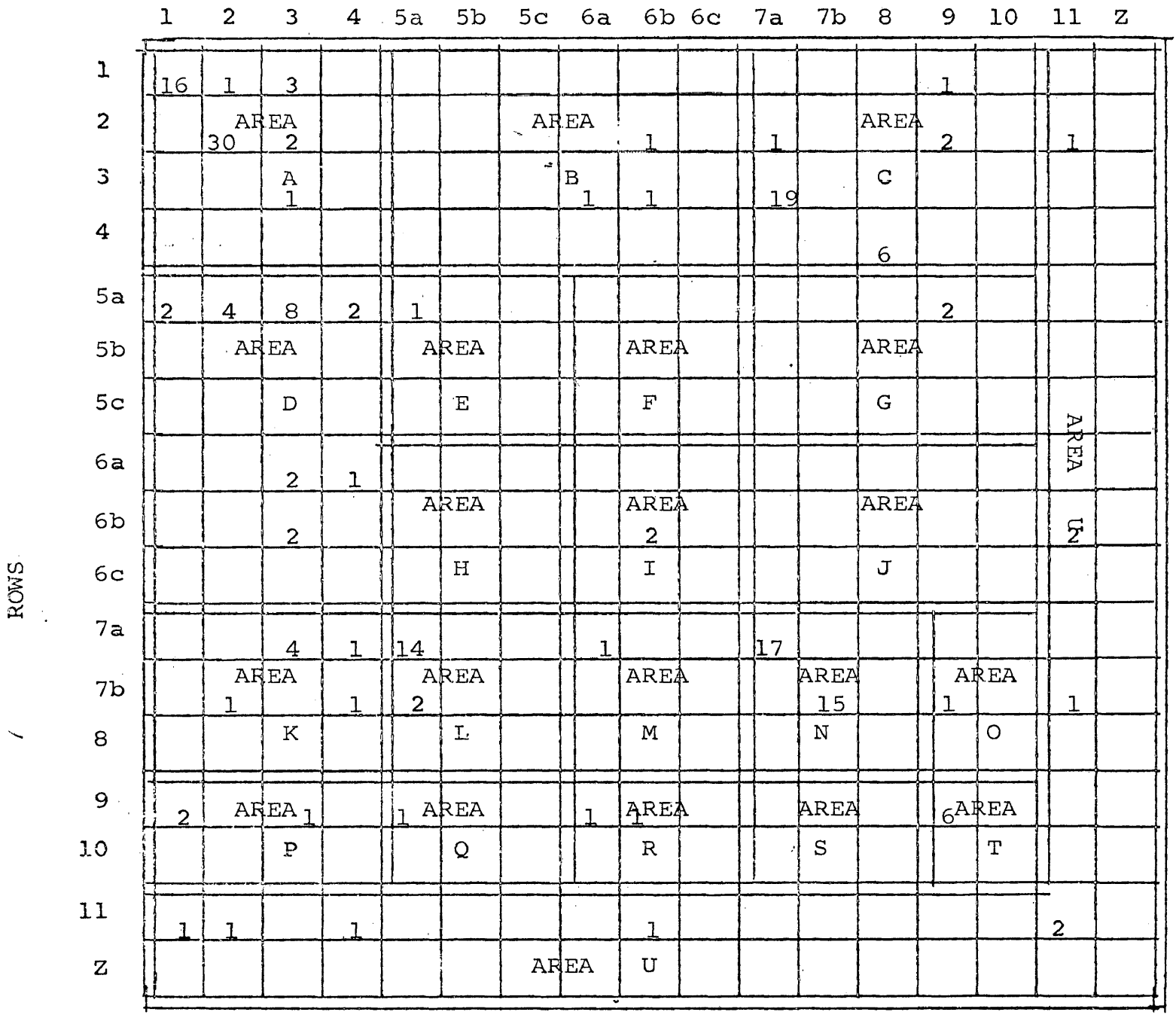
Area A	This is the area of prolonged teacher initiation, and includes presenting information or opinion, giving directions and asking questions. The major characteristic of this area is that the teacher is speaking for a relatively long period. This is not an area which shows interaction between pupil and teacher.
Area B	The cells in this area indicate teacher initiated statements followed by teacher response statements, either accepting or rejecting.
Area C	This group of cells includes all pupil talk which follows teacher initiated talk.
Area D	Area D indicates teacher response statements followed by teacher initiated statements.
Area E	This area indicates prolonged accepting behavior on the part of the teacher. This includes extended acceptance of ideas, behavior and feelings, as well as transitions from one of these verbal patterns to another.
Area F	These cells indicate teacher accepting behavior followed by teacher rejecting behavior.
Area G	This area here shows accepting teacher statements followed by any student statements.
Area H	Area H indicates teacher rejecting behavior followed by teacher accepting behavior.
Area I	These cells indicate extended rejecting behavior on the part of the teachers. Rejection of ideas, behavior and feelings are indicated here, as well as transition from one of these behavior to another.

Table 7 (continued)

Area J	These cells show all pupil statements which follow teacher rejecting statements.
Area K	This area indicates pupil response behavior followed by teacher initiated behavior.
Area L	This group of cells show student response followed by teacher acceptance.
Area M	Area M shows teacher rejection of pupil responses.
Area N	These cells show extended student response to either the teacher or another pupil.
Area O	Area O indicates pupil response statements followed by pupil initiated statements.
Area P	These cells indicate pupil initiated behavior followed by teacher initiated behavior.
Area Q	This area shows pupil initiated talk followed by teacher acceptance.
Area R	Area R indicates rejection of pupil initiated talk.
Area S	These cells indicate pupil initiated statements followed by student response statements.
Area T	This area indicated extended pupil initiated talk to either the teacher or another pupil.
Area U	Area U indicates silence or confusion. If the tallies are in row or column 11 they indicate silence, and if they are in row or column Z, they indicate confusion. Tallies in column 11 or Z represent silence or confusion following teacher or pupil talk, while tallies in rows 11 or Z represent silence or confusion after pupil or teacher talk.

MATRIX 1

COLUMNS 46



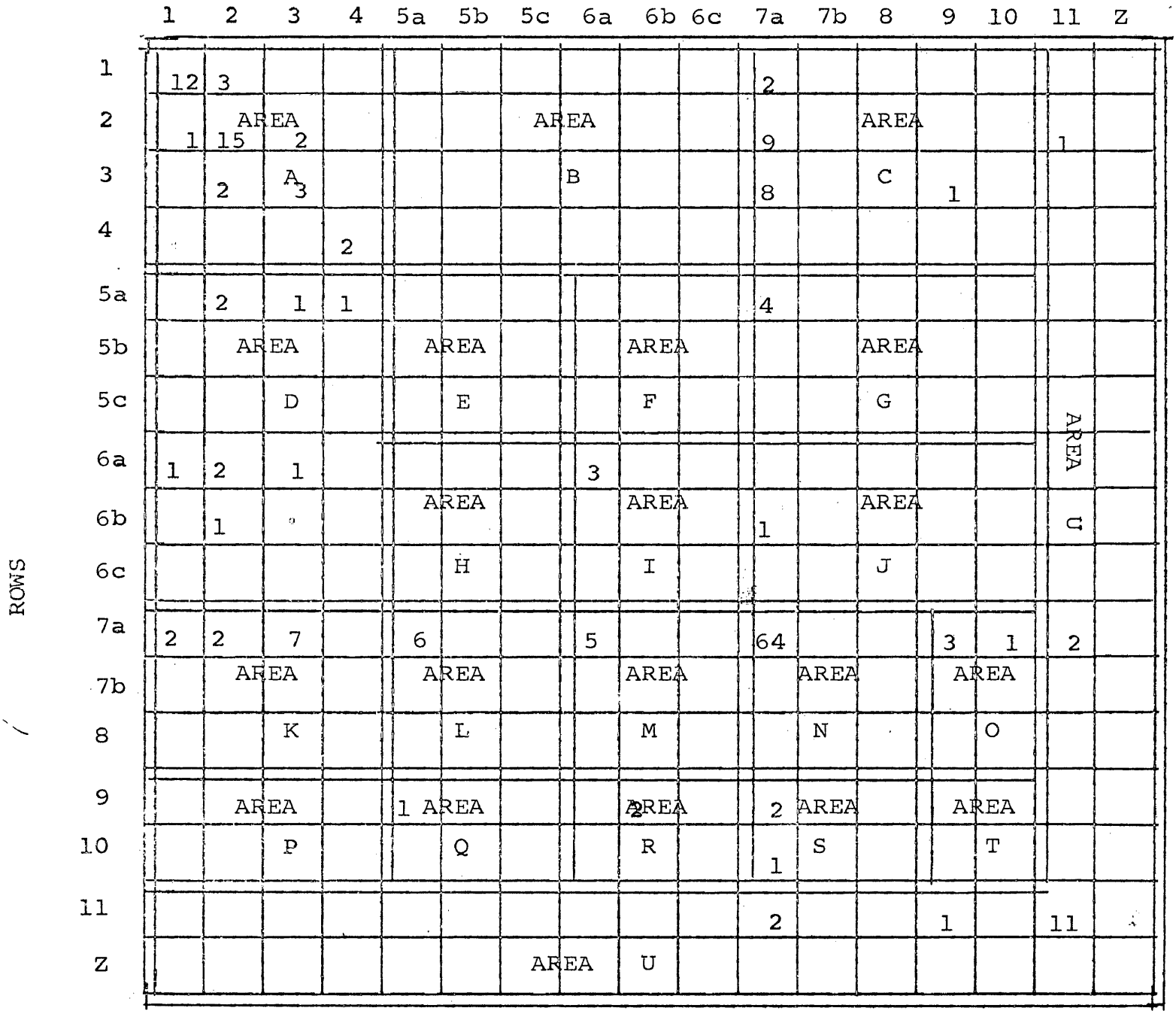
Teacher: C-1

Date: 3-17-71

Tallies: O, P, Q, R, S, and T: 13

MATRIX 2

COLUMNS 47



Teacher: C-1

Date: 4-7-71

Tallies: O, P, Q, R, S, and T: 10

MATRIX 3

COLUMNS 48

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	20	4	5	2	2									1			
2	1	AREA 19	AREA 2	1			AREA		1				AREA	3			
3			A 1					B			14		C				
4				4					1			7		2			
5a	4	2	3	2										2			
5b		AREA 1			AREA				AREA				AREA				
5c			D			E			F				G			AREA U	
6a				1													
6b	1				AREA				AREA 2				AREA	1			
6c						H			I				J				
7a	5		1	2	5												
7b	1	AREA		1	AREA 3				AREA			AREA 20		AREA 4			
8			K 1			L			M			N	5		O		
9	2	1 AREA	2	1	2 AREA	1			AREA			AREA	2	20 AREA			
10			P			Q			R			S	1		T 1		
11																	
Z							AREA		U								

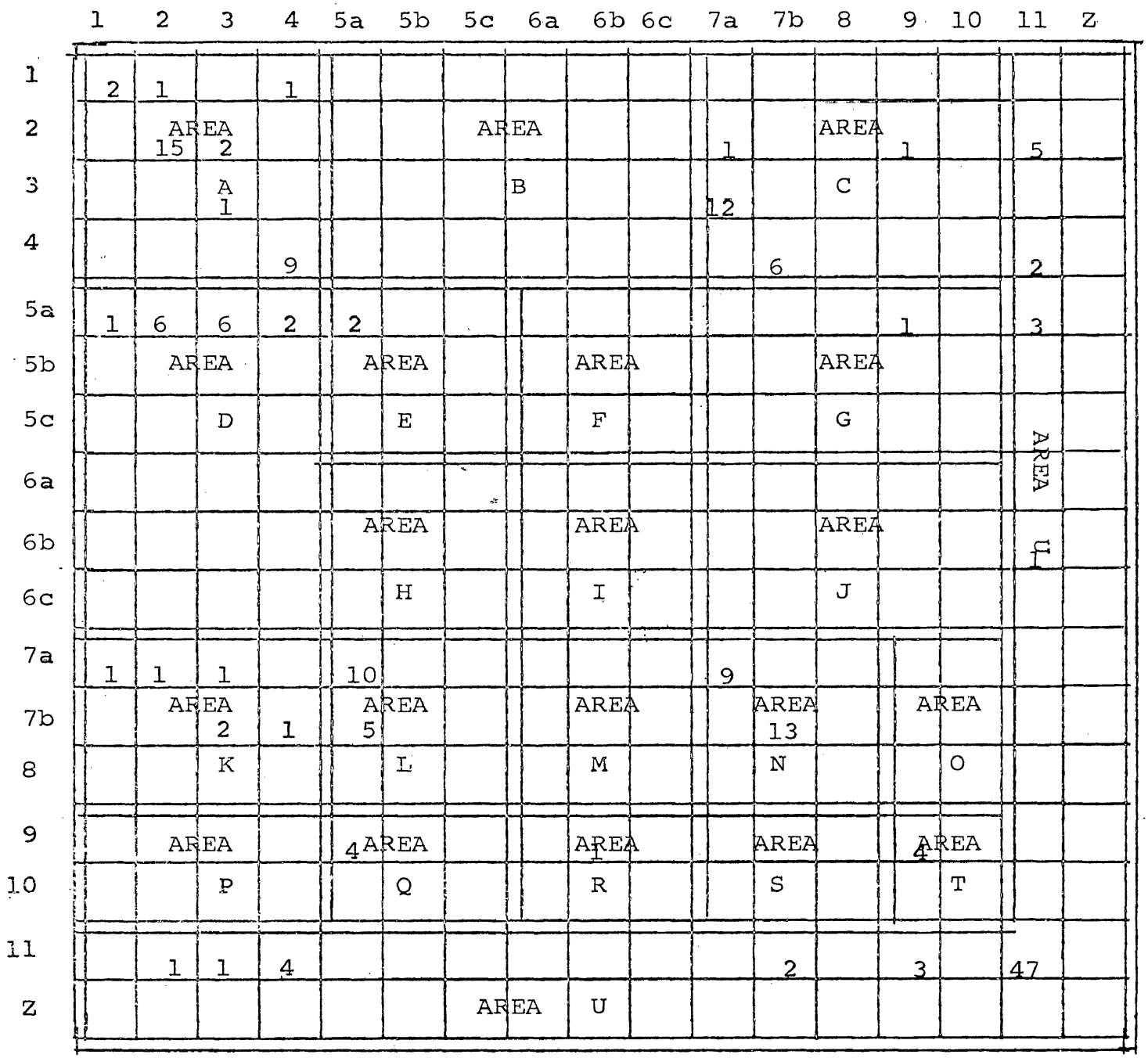
Teacher: C-1

Date: 5-3-71

Tallies: O, P, Q, R, S, and T: 38

MATRIX 4

COLUMNS 49



Teacher: C-2

Date: 3-25-71

Tallies: O, P, Q, R, S, and T: 9

MATRIX 5

COLUMNS 50

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	22	4	2	2								1		2			
2	1	AREA 17	3		1		AREA				7		AREA	1		3	
3		1	A 5					B			18		C			1	
4	1			3								1				1	
5a	7	6	7		1												
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a	1	1	3														
6b		2			AREA				AREA				AREA			U	
6c						H			I				J				
7a	1	2	5		15			5			24						
7b		AREA			1 AREA				AREA			AREA			AREA		
8			K			L			M			N			O		
9		AREA			1 AREA				2 AREA			AREA		1	AREA		
10			P			Q			R			S			T		
11											4						
Z							AREA		U								

Teacher: C-2

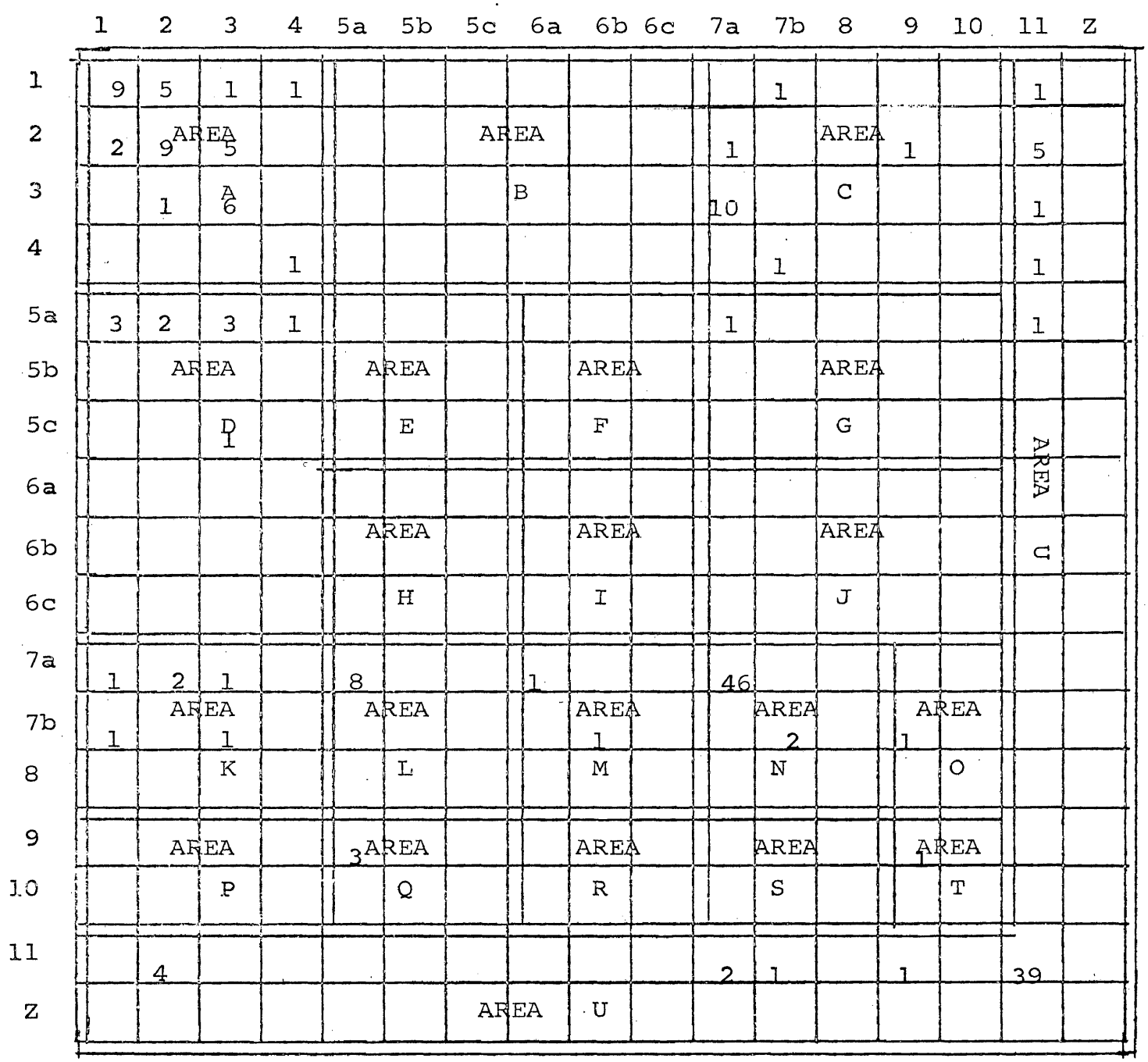
Date: 4-8-71

Tallies: O, P, Q, R, S, and T: 4

MATRIX 6

COLUMNS

ROWS



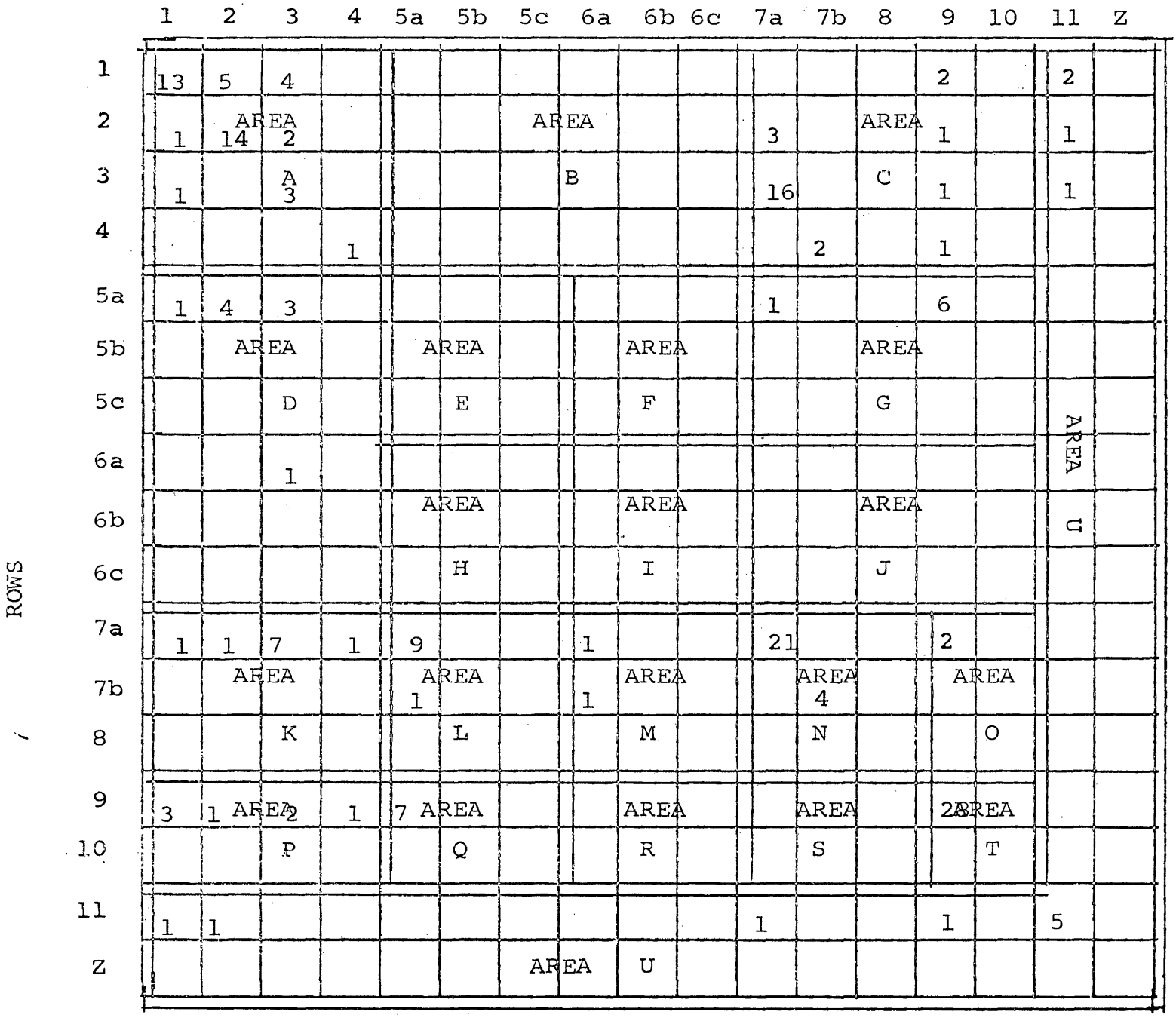
Teacher: C-2

Date: 5-7-71

Tallies: O, P, Q, R, S, and T: 6

MATRIX 7

COLUMNS 52



Teacher: C-3

Date: 3-16-71

Tallies: O, P, Q, R, S, and T: 44

MATRIX 8

COLUMNS 53

ROWS	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	9	2	3														
2	1	AREA 22	4				AREA 1				8		AREA		1	3	
3			A 2					B			19		C			4	
4												2					
5a	1	3	6	1											2		
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a	1		1								1			1			
6b		3			AREA				AREA				AREA			U	
6c						H			I				J				
7a	1	4	10		14			3	3		25			1			
7b	1	AREA			1 AREA				AREA			AREA 9			AREA	1	
8			K		1	L			M			N			O		
9	1	2 AREA				AREA			AREA			AREA			AREA		
10			P			Q			R		1	S	1		T	1	
11		2		1	2						3			1		5	
Z							AREA		U								

Teacher: C-3

Date: 4-2-71

Tallies: O, P, Q, R, S, and T: 6

MATRIX 9

COLUMNS 54

ROWS	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	17	4	4														
2		8 AREA			1		AREA				12		AREA	1		4	
3			A 2					B			18		C			4	
4				4								1					
5a	5	4												1			
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a			1														
6b					AREA				AREA				AREA			U	
6c						H			I				J				
7a	1	8	10		9			1			34		1	2			
7b		AREA			1 AREA				AREA			AREA 1			AREA		
8	1		K			L			M			N	1		O		
9		AREA 2			1 AREA				AREA			AREA		8	AREA		
10			P			Q			R			S			T		
11	1		4								2					8	
Z							AREA		U								

Teacher: C-3

Date: 5-4-71

Tallies: O, P, Q, R, S, and T: 14

MATRIX 10

COLUMNS 55

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	30	1	4	3										2			
2		1 AREA					AREA				2		AREA			4	
3			A 1					B			16		C				
4												13					
5a	5	4	4	5												1	
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a																	
6b					AREA				AREA				AREA			U	
6c						H			I				J				
7a	2		1	2	13						27						
7b	5	AREA	3		5 AREA				AREA			AREA 23			AREA		
8			K			L			M			N			O		
9		AREA		1	1 AREA				AREA			AREA		1 AREA			
10			P			Q			R			S			T		
11		1	3	1												6	
Z							AREA		U								

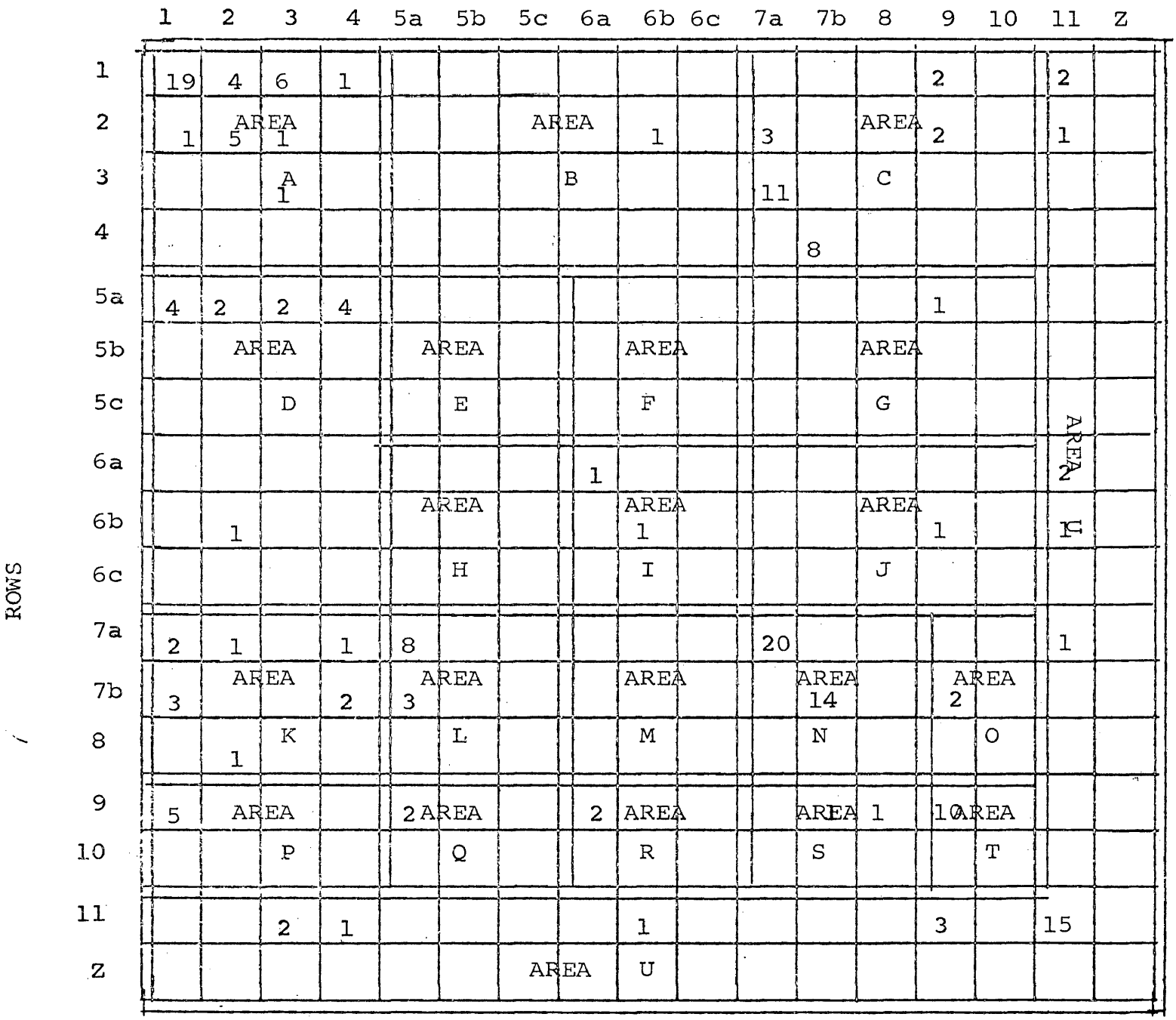
Teacher: C-4

Date: 3-26-71

Tallies: O, P, Q, R, S, and T: 3

MATRIX 11

COLUMNS 56



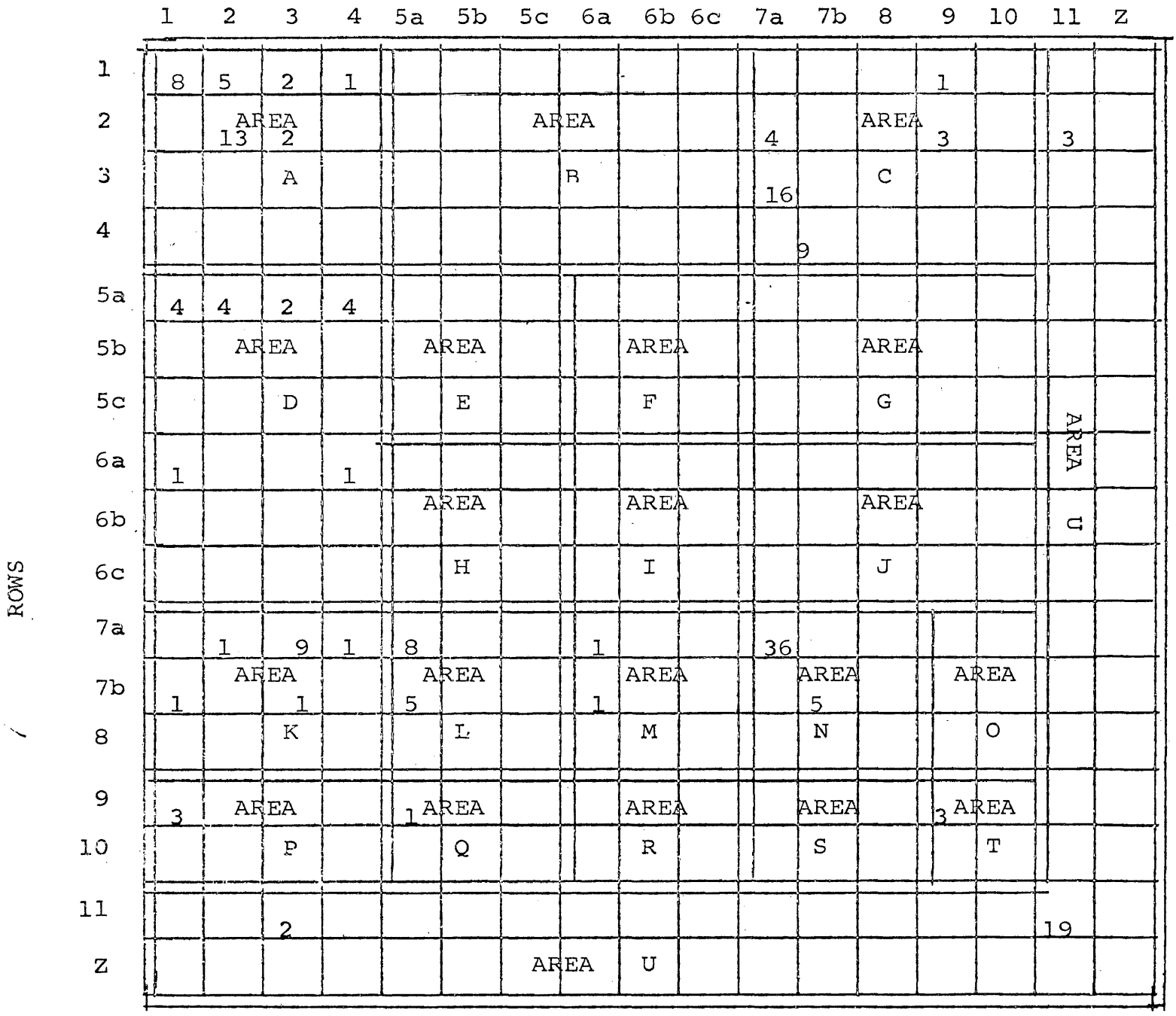
Teacher: C-4

Date: 4-7-71

Tallies: O, P, Q, R, S, and T: 23

MATRIX 12

COLUMNS 57



Teacher: C-4

Date: 5-4-71

Tallies: O, P, Q, R, S, and T: 7

MATRIX 13

COLUMNS

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	9	6	2								2						
2		6 AREA					AREA				15		AREA				
3			A					B			/		C				
4												1					
5a	3	7		1				1			8			1			
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a	2	1						1			3						
6b					AREA				AREA				AREA			U	
6c						H			I				J				
7a	1	2	3		18			6			67		1			3	
7b		AREA			AREA 1				AREA			AREA 2			AREA		
8		1	K			L			M			N	1		O		
9		AREA			AREA 1				AREA			AREA		2	AREA		
10			P			Q			R			S			T		
11		1	2													2	
Z							AREA		U								

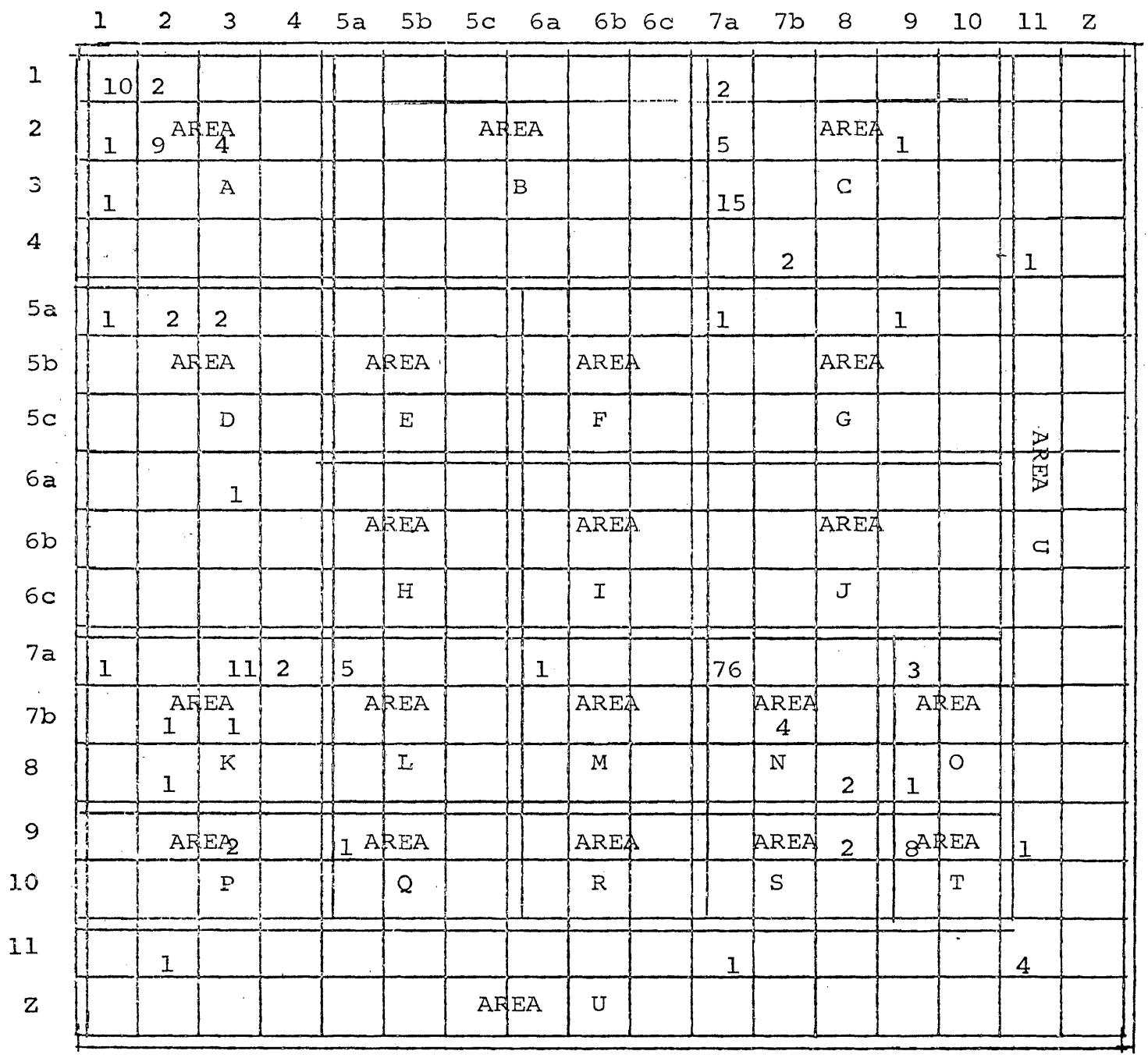
Teacher: C-5

Date: 3-26-71

Tallies: O, P, Q, R, S, and T: 3

MATRIX 14

COLUMNS 59



Teacher: C-5

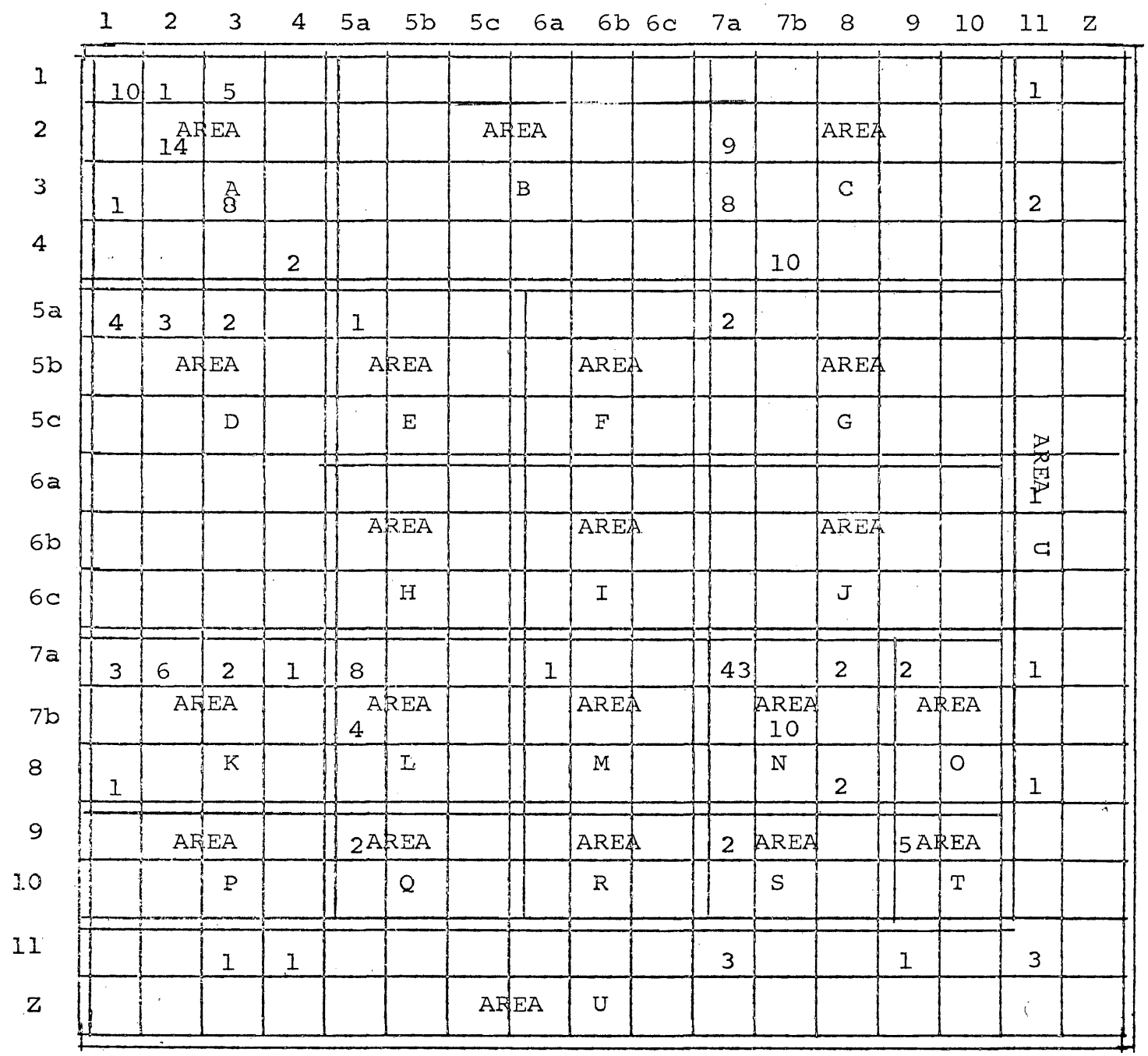
Date: 4-8-71

Tallies: O, P, Q, R, S, and T: 17

MATRIX 15

COLUMNS 60

ROWS



Teacher: C-5

Date: 5-6-71

Tallies: O, P, Q, R, S, and T: 11

MATRIX 16

COLUMNS 61

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	29	4	3	1										2			
2		AREA 12	2				AREA				1	1	AREA		1	2	
3		1	A					B			14		C			1	
4				4								3				2	
5a	7	1	5	2	2									1			
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a	2							1						1			
6b					AREA				AREA				AREA			U	
6c						H			I				J				
7a			3	1	9			2			18		1				
7b		AREA 1			AREA 2			1	AREA			AREA 15	1	AREA 1			
8			K	1	1	L			M			N	3		O		
9	1	AREA			4	AREA			AREA			AREA		13	AREA		
10			P 1			Q			R			S			T		
11											3	2				1	
Z							AREA		U								

Teacher: B-1

Date: 3-25-71

Tallies: O, P, Q, R, S, and T: 20

MATRIX 17

COLUMNS 62

ROWS	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	39	1	3	3	1			1						2		2	
2		AREA 8	1				AREA				4		AREA	1	1	1	
3			3 A					B			8		C			1	
4				6								3		1			
5a	4	4	1	2	3								1	1		1	
5b		AREA	1		AREA				AREA				AREA				
5c			D			E			F				G				AREA
6a	1		1														
6b					AREA				AREA				AREA				U
6c						H			I				J				
7a	3		1		8			2			23					1	
7b		AREA			AREA 3				AREA			AREA 10		AREA			
8			K			L			M			N	2		O	2	
9	3	1 AREA			2 AREA				AREA			AREA		6 AREA			
10			P			Q			R			S	1		T		
11	2	1	1								2			1		5	
Z							AREA	U									

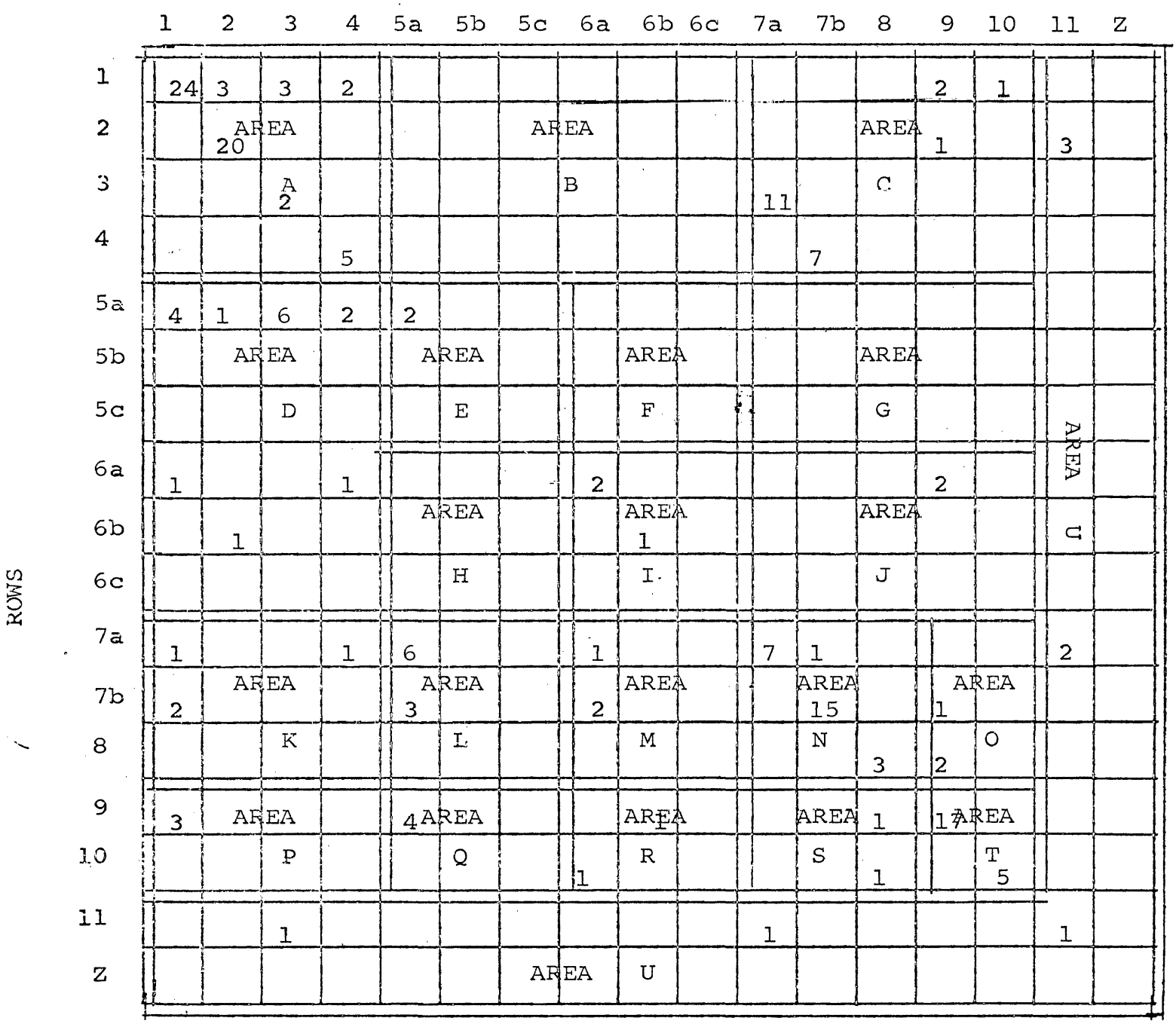
Teacher: B-1

Date: 4-2-71

Tallies: O, P, Q, R, S, and T: 14

MATRIX 18

COLUMNS 63



Teacher: B-1

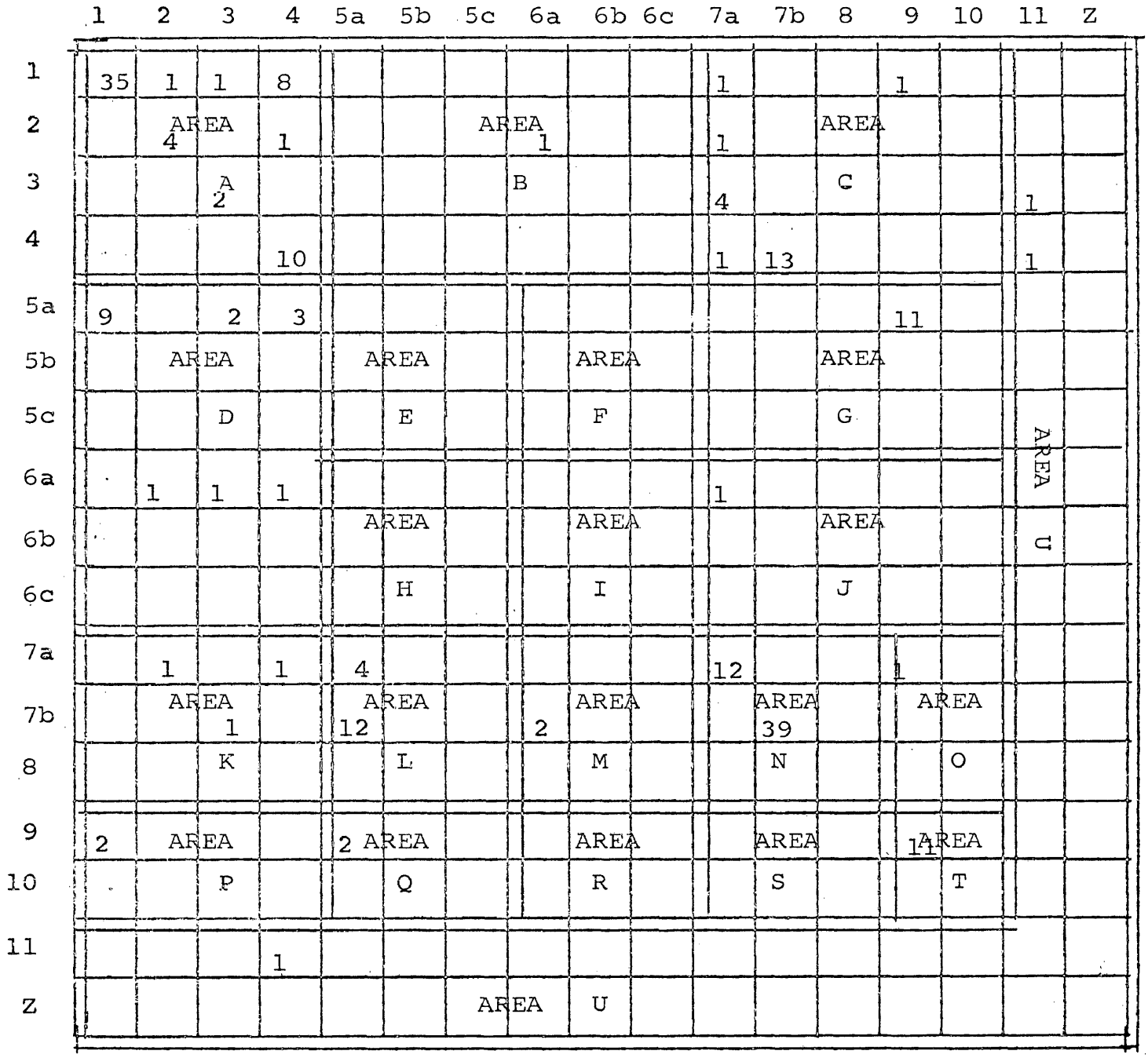
Date: 4-27-71

Tallies: O, P, Q, R, S, and T: 36

MATRIX 19

COLUMNS 64

ROWS



Teacher: B-2

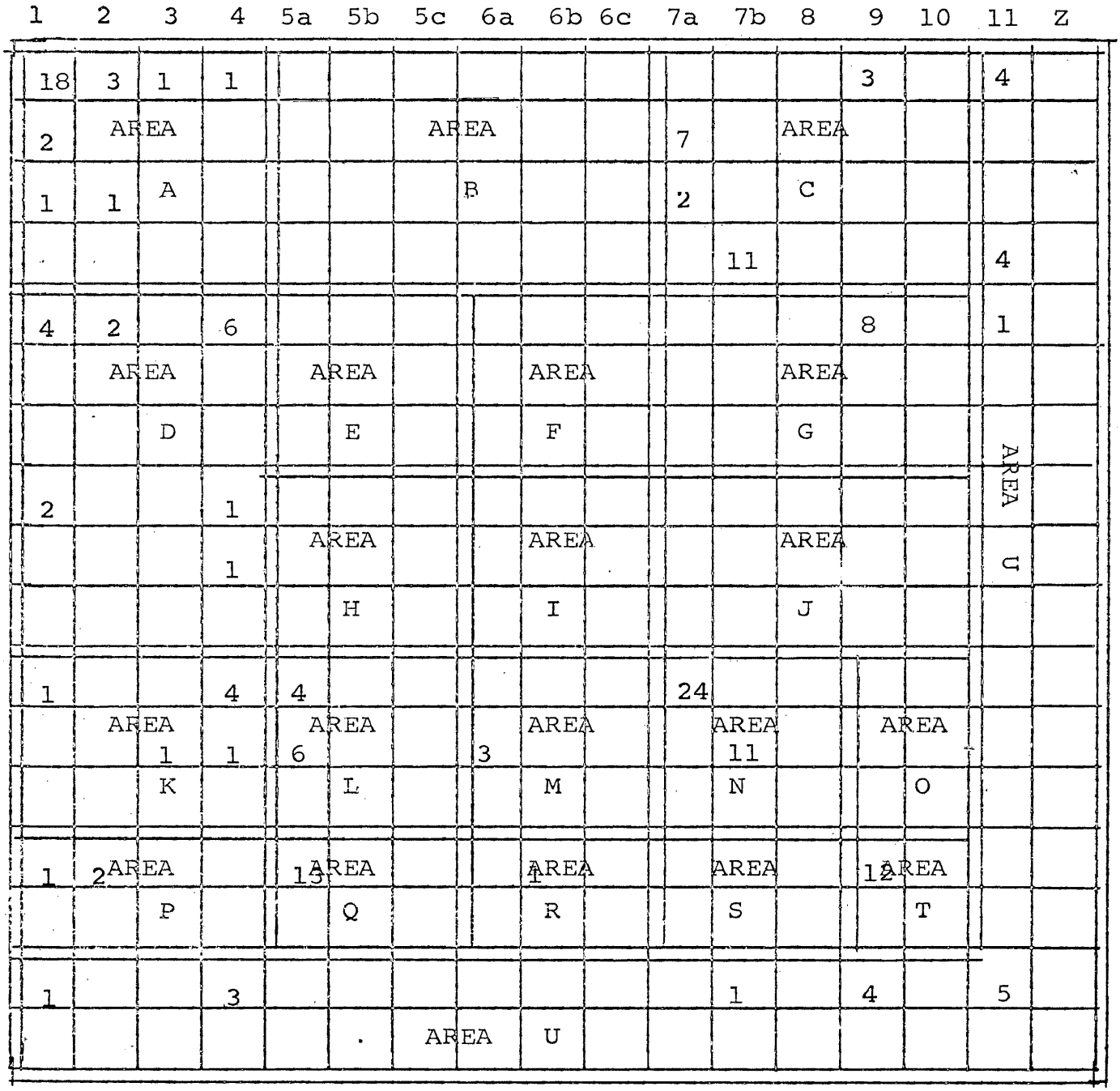
Date: 3-23-71

Tallies: O, P, Q, R, S, and T: 15

MATRIX 20

COLUMNS 65

ROWS



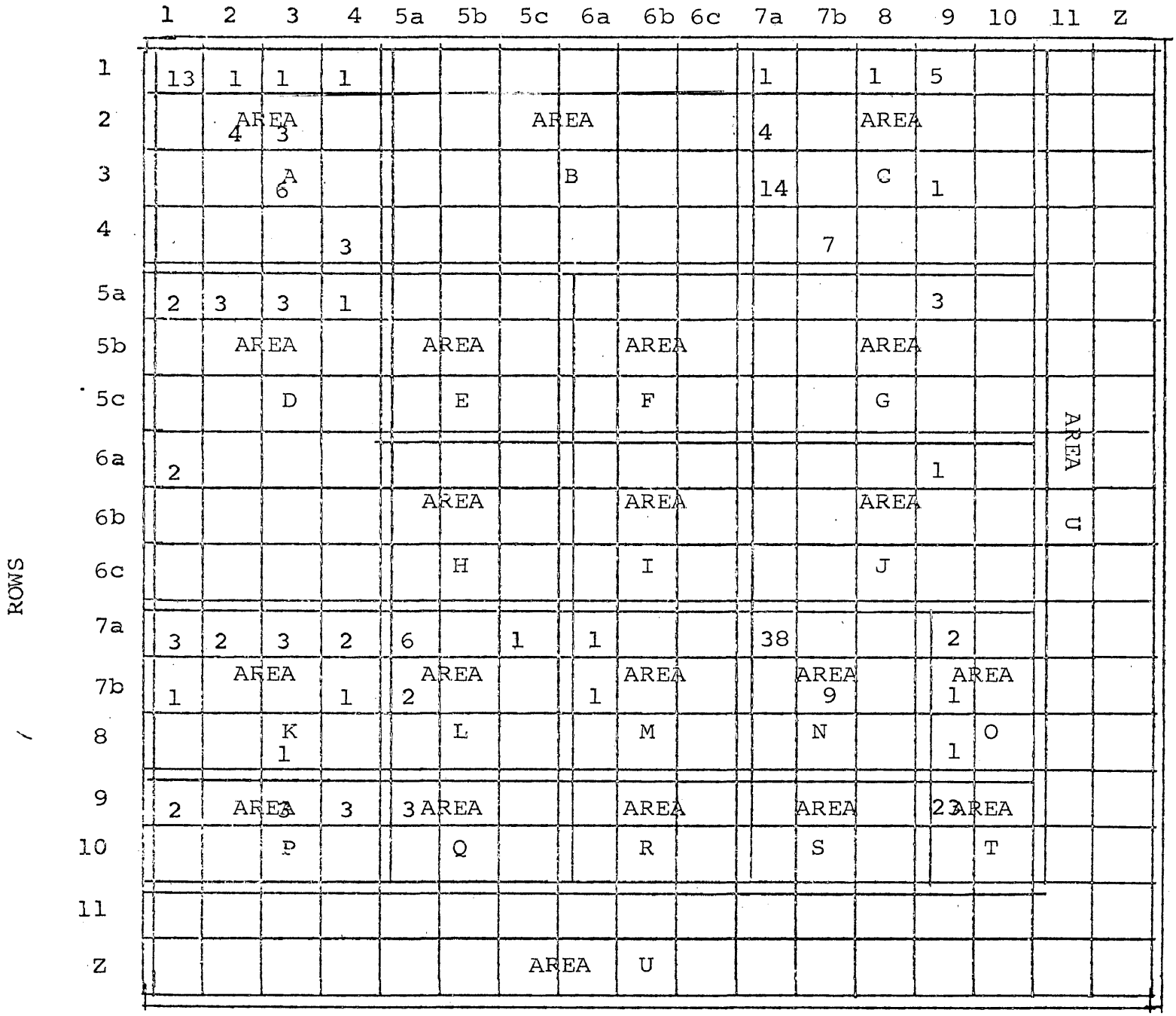
Teacher: B-2

Date: 4-6-71

Tallies: O, P, Q, R, S, and T: 30

MATRIX 21

COLUMNS 66



Teacher: B-2

Date: 4-29-71

Tallies: O, P, Q, R, S, and T: 38

MATRIX 22

COLUMNS 67

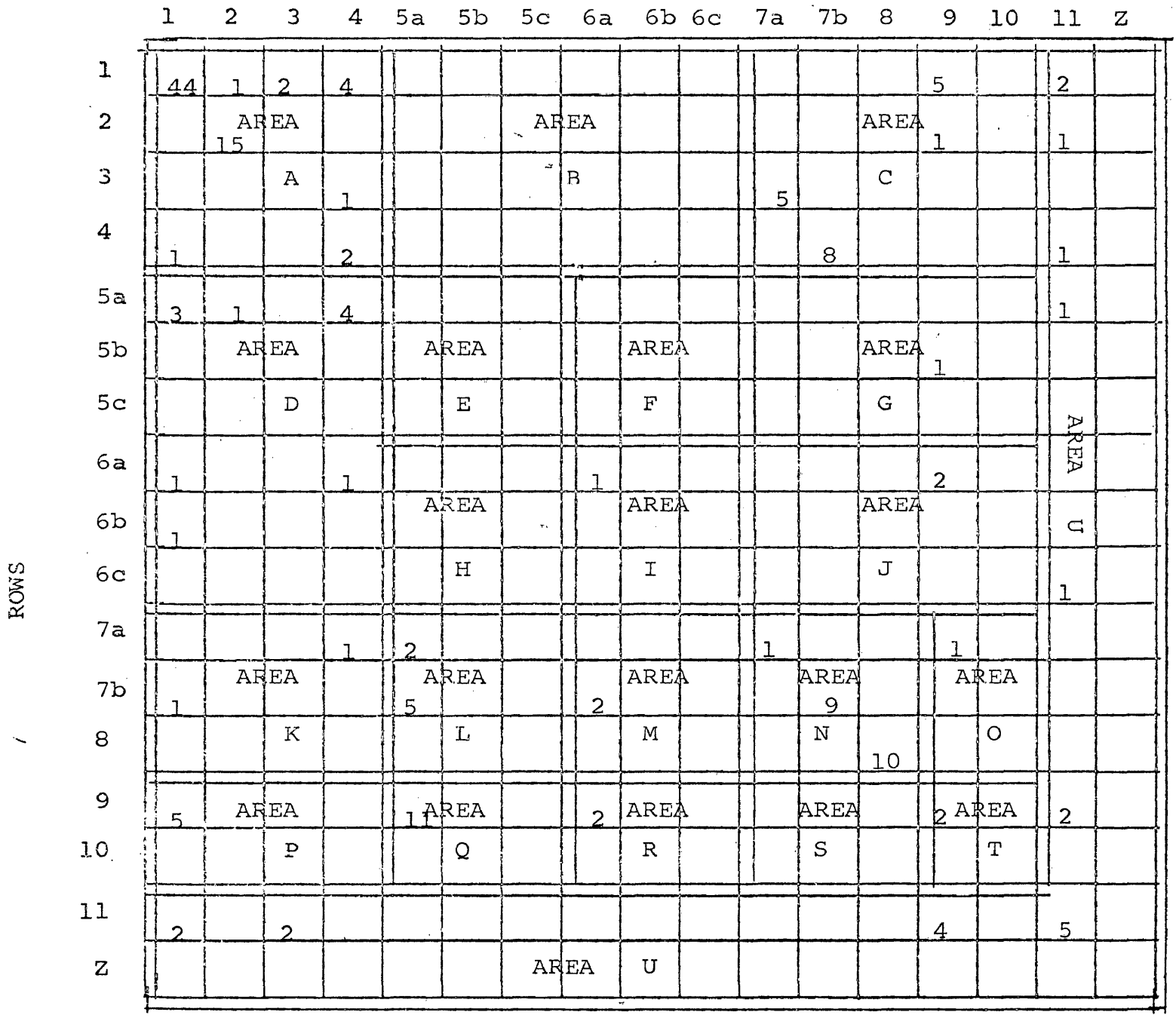
Teacher: B-3

Date: 3-23-71

Tallies: O, P, Q, R, S, and T: 6

MATRIX 23

COLUMNS 68



Teacher: B-3

Date: 4-6-71

Tallies: O, P, Q, R, S, and T: 33

MATRIX 24

COLUMNS 69

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	37	2	2	2									5			4	
2		25 AREA	1	1			AREA						AREA 2			2	
3			A					B			3		C				
4												5					
5a	3																
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a																	
6b					AREA				AREA				AREA	9		U	
6c						H			I				J				
7a	1		1	1	1						1						
7b	4	AREA			1 AREA				AREA			AREA 20		1	AREA		
8			K			L			M			N			O		
9	7	AREA			11 AREA				AREA			AREA		19	AREA	1	
10			P			Q			R			S	1		T 2		
11		1		1										4		19	
Z							AREA		U								

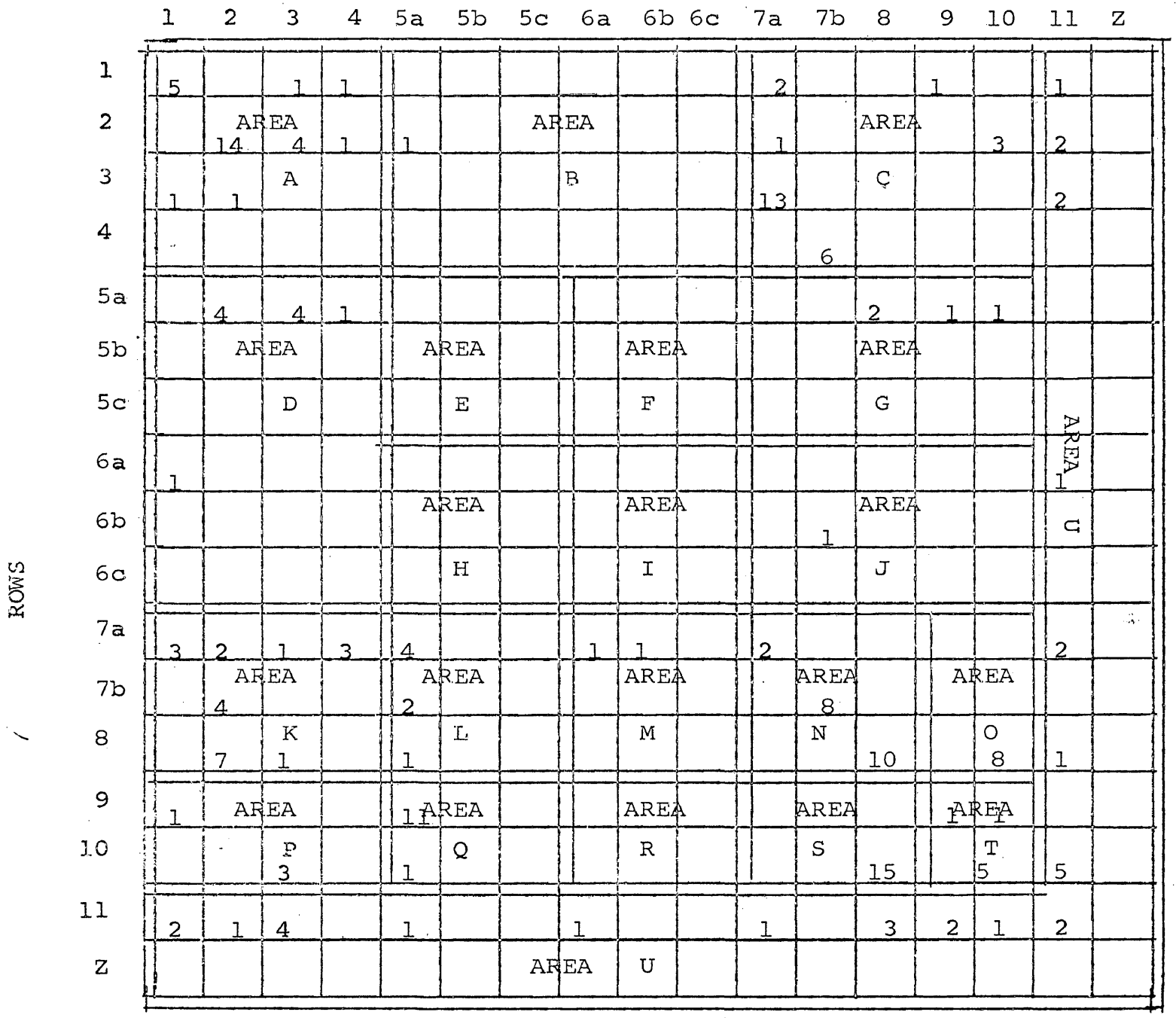
Teacher: B-3

Date: 4-30-71

Tallies: O, P, Q, R, S, and T: 32

MATRIX 25

COLUMNS 70



Teacher: B-4

Date: 3-24-71

Tallies: O, P, Q, R, S, and T: 37

MATRIX 26

COLUMNS 71

ROWS

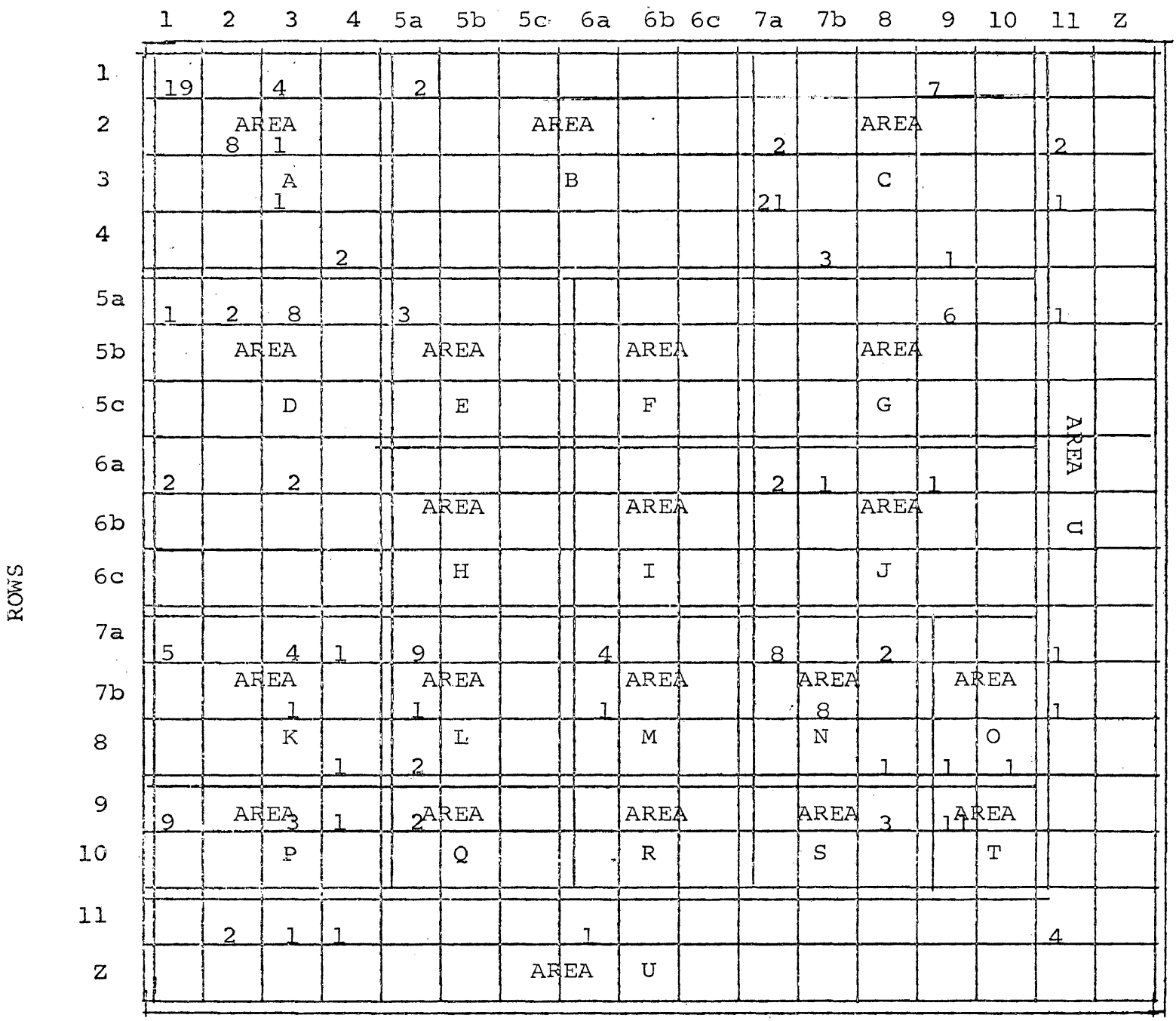
Teacher: B-4

Date: 4-5-71

Tallies: O, P, Q, R, S, and T: 7

MATRIX 27

COLUMNS 72



Teacher: B-4

Date: 4-28-71

Tallies: O, P, Q, R, S, and T: 30

MATRIX 28

COLUMNS 73

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	6	4	2	1													
2	1	24 AREA	2				AREA				2		AREA	3	1	5	
3			A					B			6		C				
4				1								2					
5a	1	7															
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a																	
6b	1				AREA				AREA 1		1		AREA			U	
6c						H			I				J				
7a		1			4				1		71			2			
7b		AREA		1	1 AREA				AREA			AREA 4		AREA			
8			K			L			M			N	1		O	1	
9	2	AREA 1			2 AREA				AREA			AREA		1 AREA			
10			P			Q			R			S	1		T 1		
11	1	3	1											1		17	
Z							AREA		U								

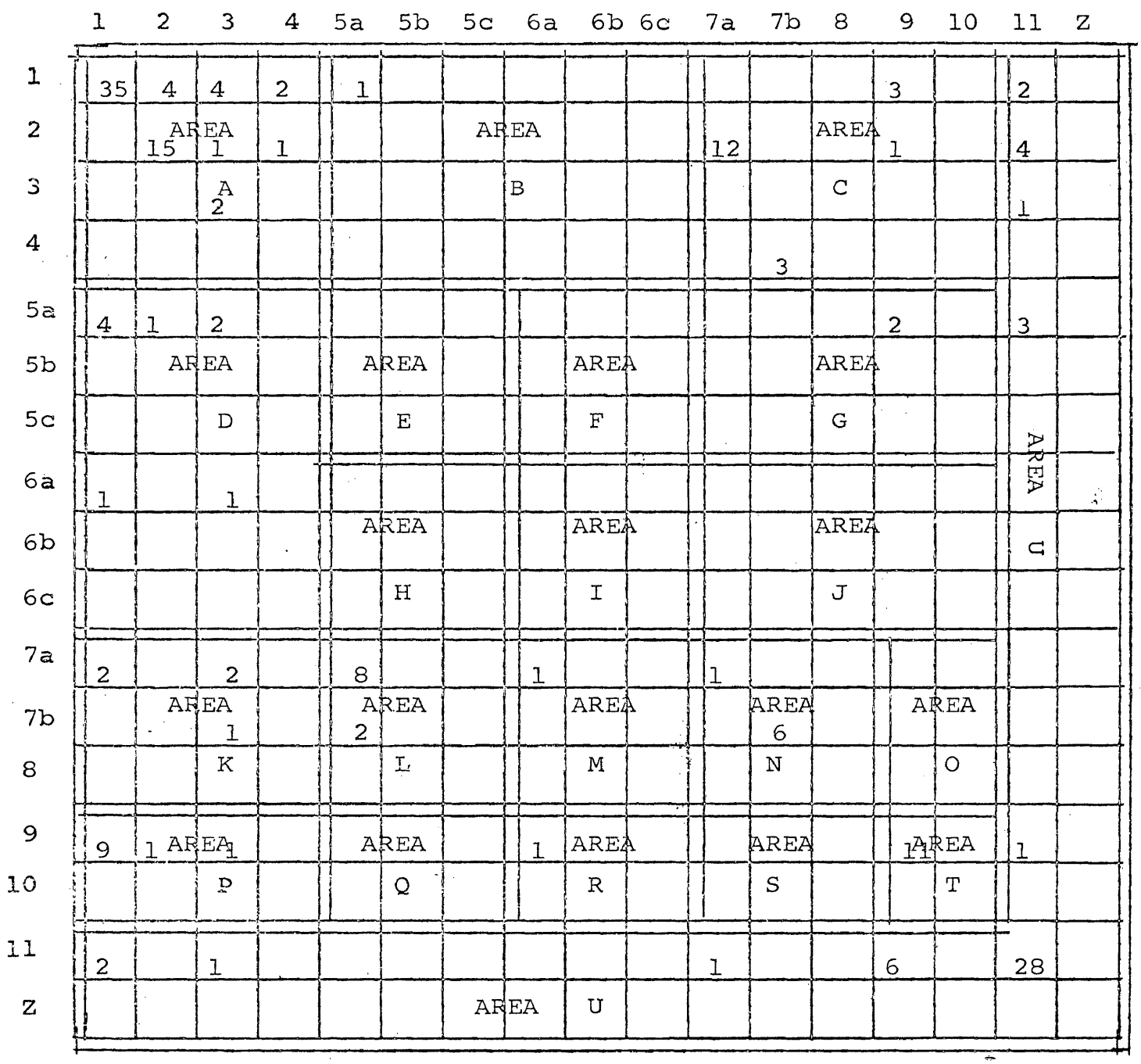
Teacher: B-5

Date: 3-24-71

Tallies: O, P, Q, R, S, and T: 11

MATRIX 29

COLUMNS



Teacher: B-5

Date: 4-5-71

Tallies: O, P, Q, R, S, and T: 23

MATRIX 30

COLUMNS 75

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	33	4	3	1	4			1						3			
2		AREA 10					AREA				8		AREA			3	
3			A					B			5		C				
4												5					
5a	8	1	2	2										2		1	
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a	2							1									
6b					AREA				AREA				AREA			U	
6c						H			I				J				
7a	3				6			3			19			1			
7b		AREA		2	AREA 2				AREA			AREA 17		AREA			
8			K			L			M			N			O		
9	3	AREA		1	3 AREA				AREA			AREA		1 AREA		1	
10			P			Q			R			S			T		
11	4													1		11	
Z							AREA		U								

Teacher: B-5

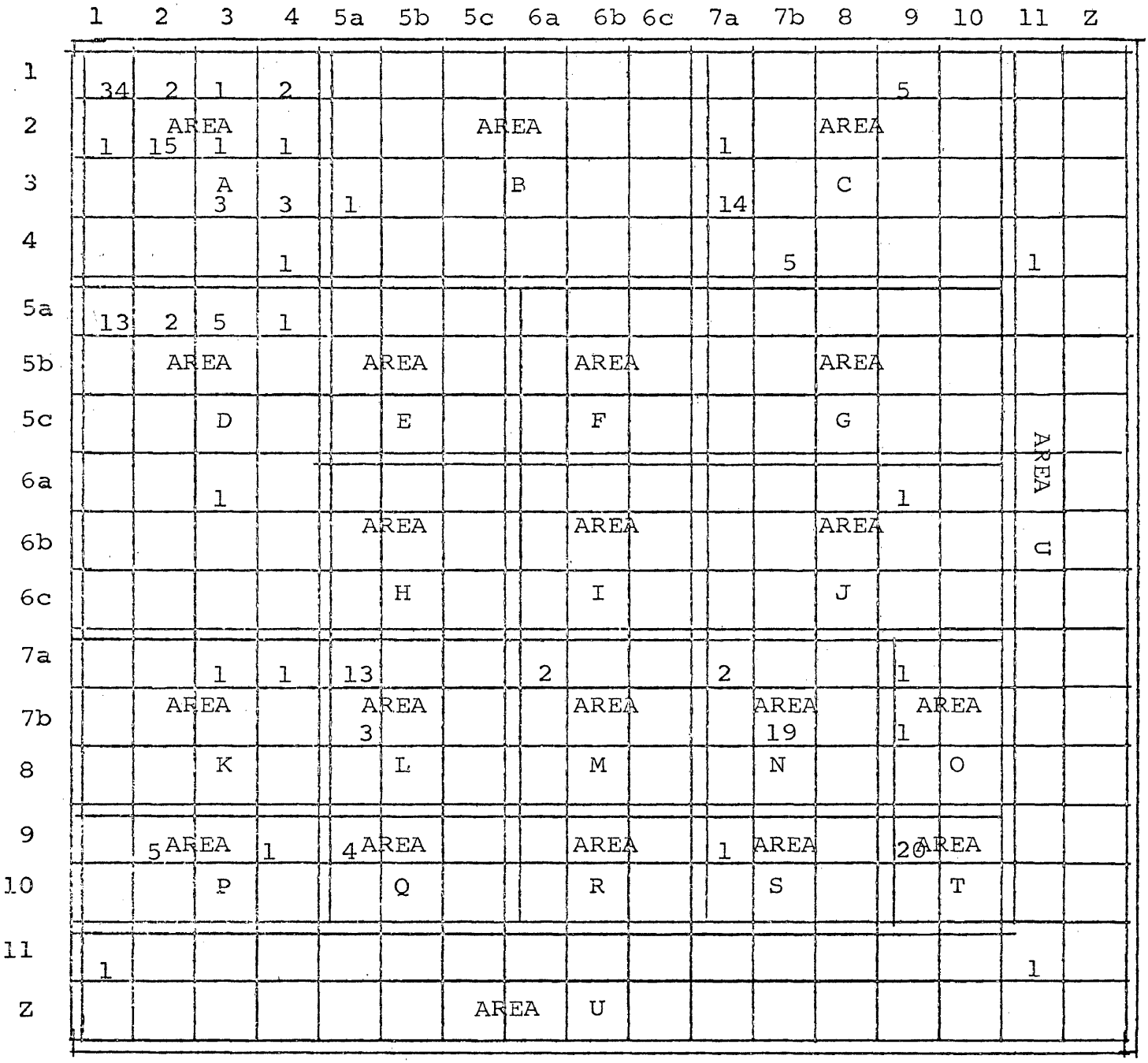
Date: 4-27-71

Tallies: O, P, Q, R, S, and T: 20

MATRIX 31

COLUMNS 76

ROWS



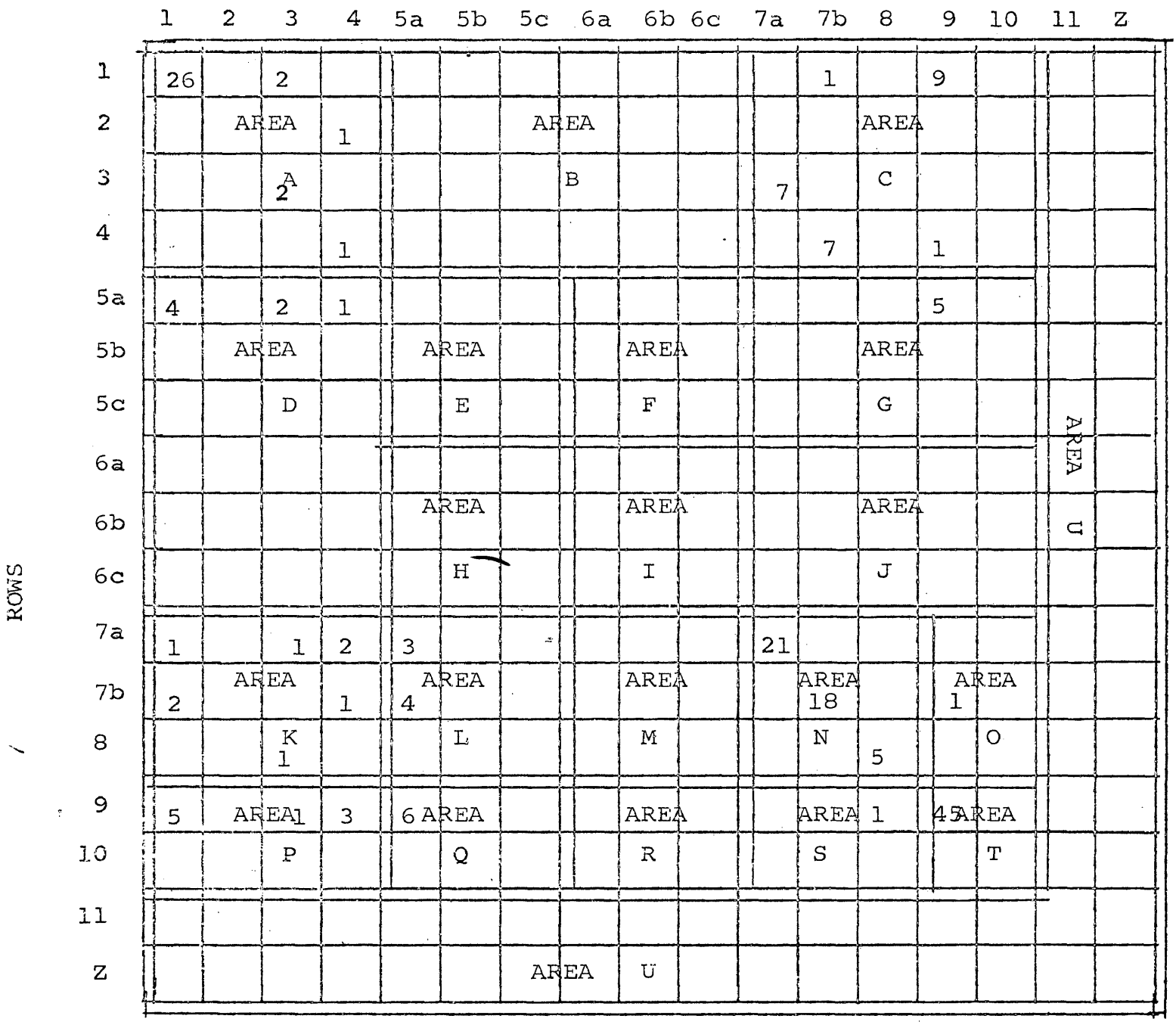
Teacher: A-1

Date: 3-22-71

Tallies: O, P, Q, R, S, and T: 33

MATRIX 32

COLUMNS 77



Teacher: A-1

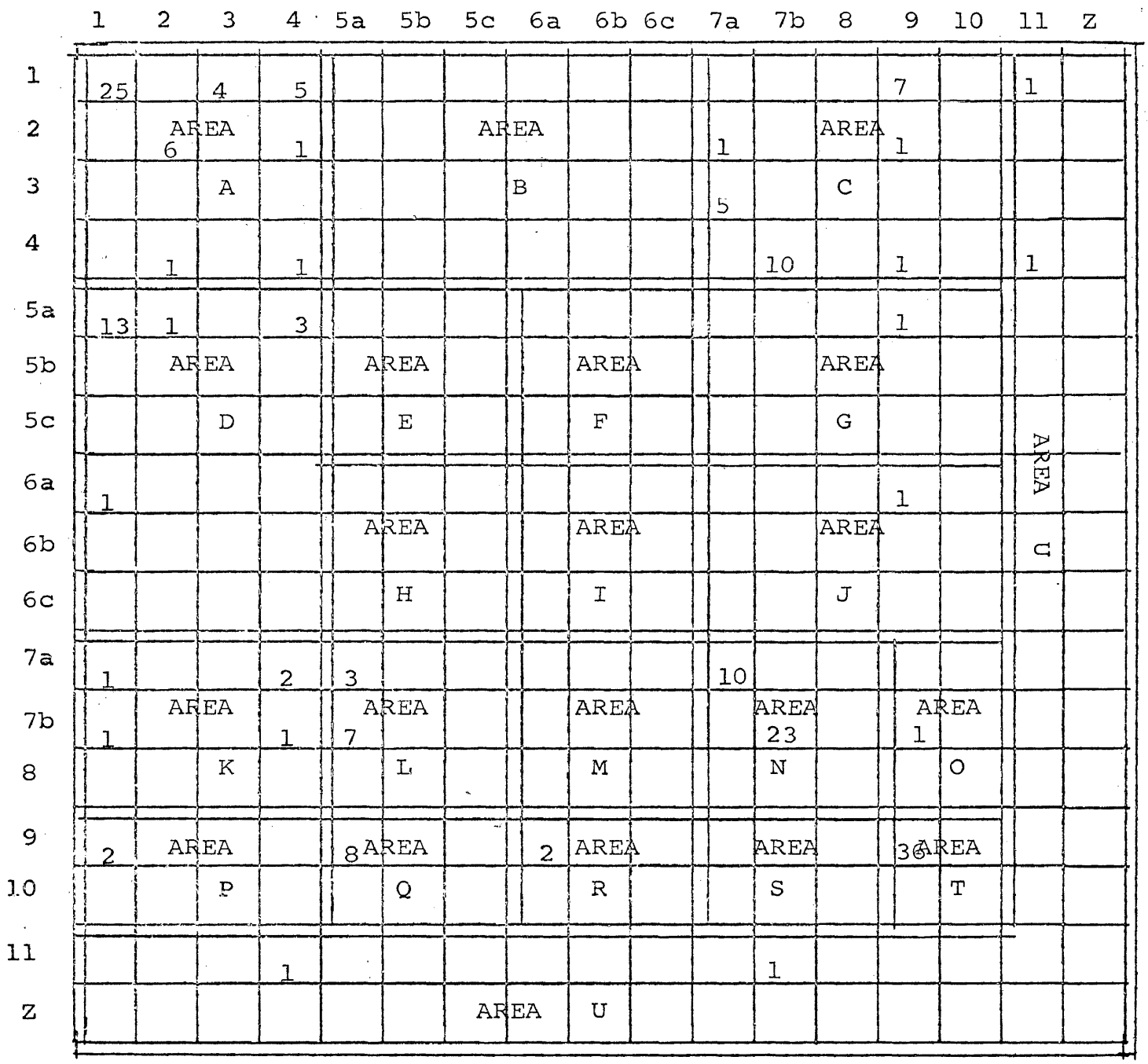
Date: 3-31-71

Tallies: O, P, Q, R, S, and T: 62

MATRIX 33

COLUMNS 78

ROWS



Teacher: A-1

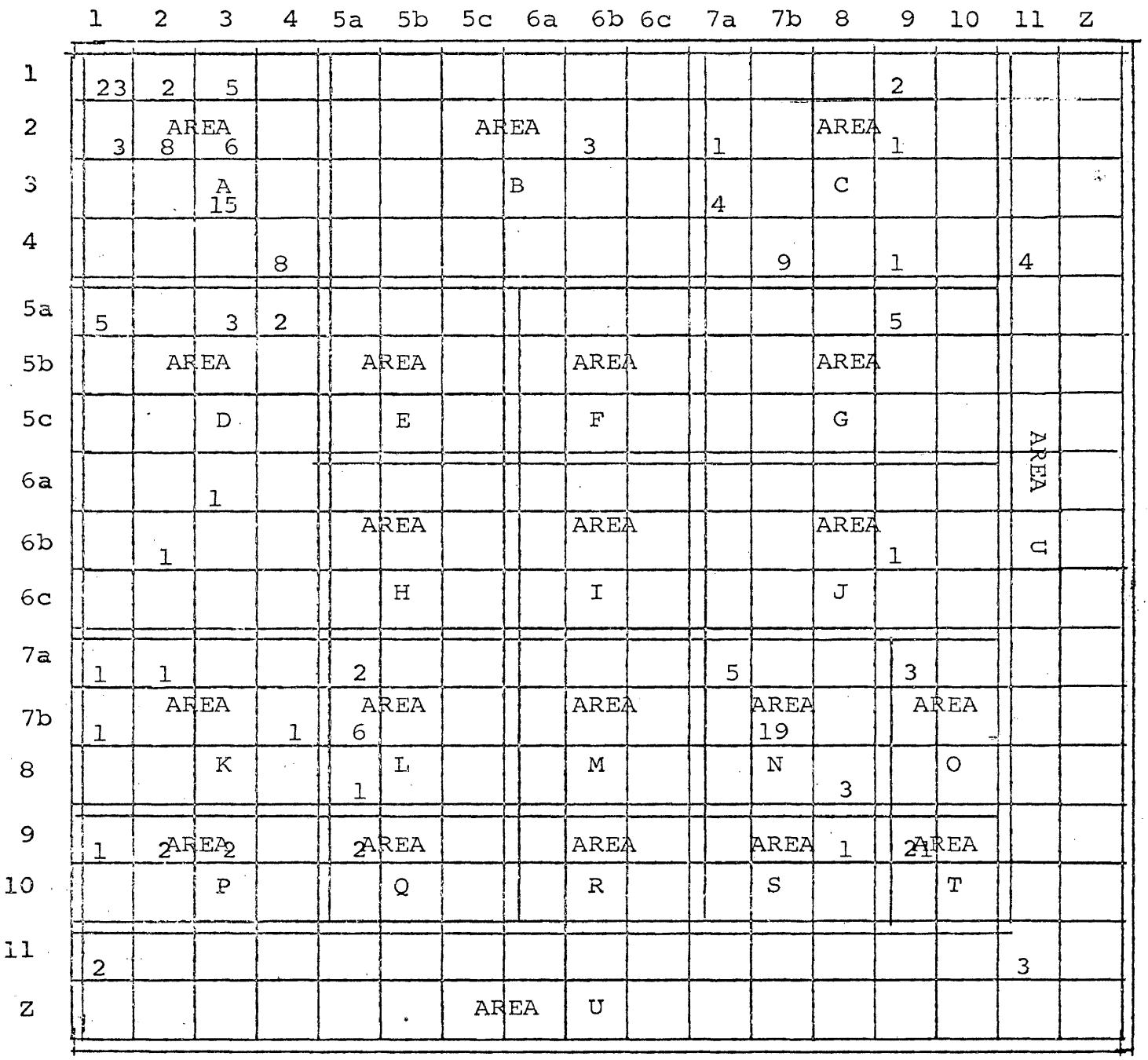
Date: 4-22-71

Tallies: O, P, Q, R, S, and T: 49

MATRIX 34

COLUMNS 79

ROWS



Teacher: A-2

Date: 3-19-71

Tallies: O, P, Q, R, S, and T: 32

MATRIX 35

COLUMNS 80

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	23	2	1	6								2		8			
2		AREA 13					AREA						AREA				
3			A 2					B			10		C				
4				1								5		2			
5a	8		2	2													
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a																	
6b					AREA				AREA				AREA			U	
6c						H			I				J				
7a	1		1	1	2						22						
7b	2	AREA		1	3	AREA			AREA			AREA 17		1	AREA		
8			K 1			L			M			N	4		O		
9	3	AREA 1		2	4	AREA			AREA			AREA			AREA		
10			P			Q			R			S			T		
11																	
Z							AREA		U								

Teacher: A-2

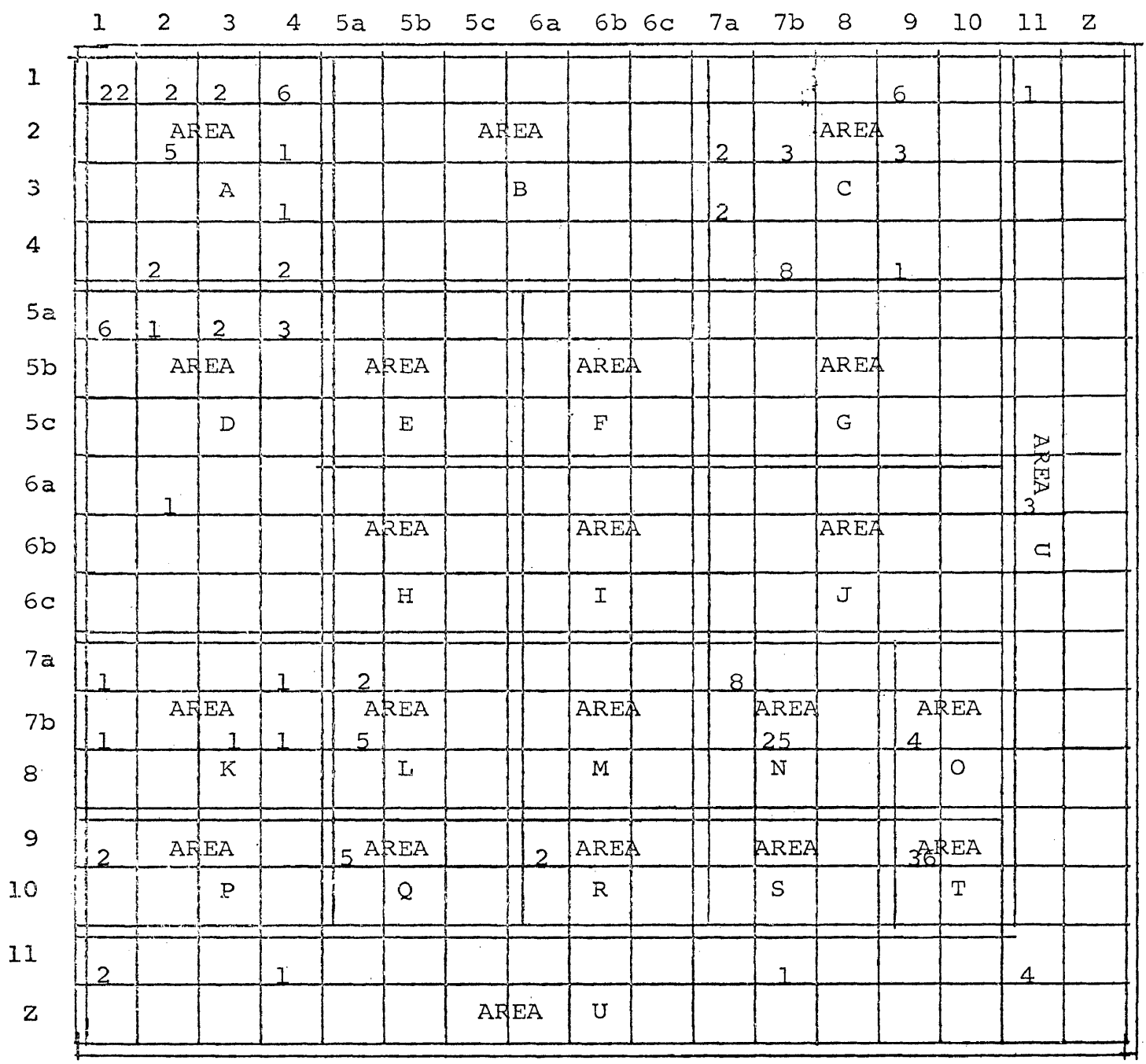
Date: 3-30-71

Tallies: O, P, Q, R, S, and T: 47

MATRIX 36

COLUMNS 81

ROWS



Teacher: A-2

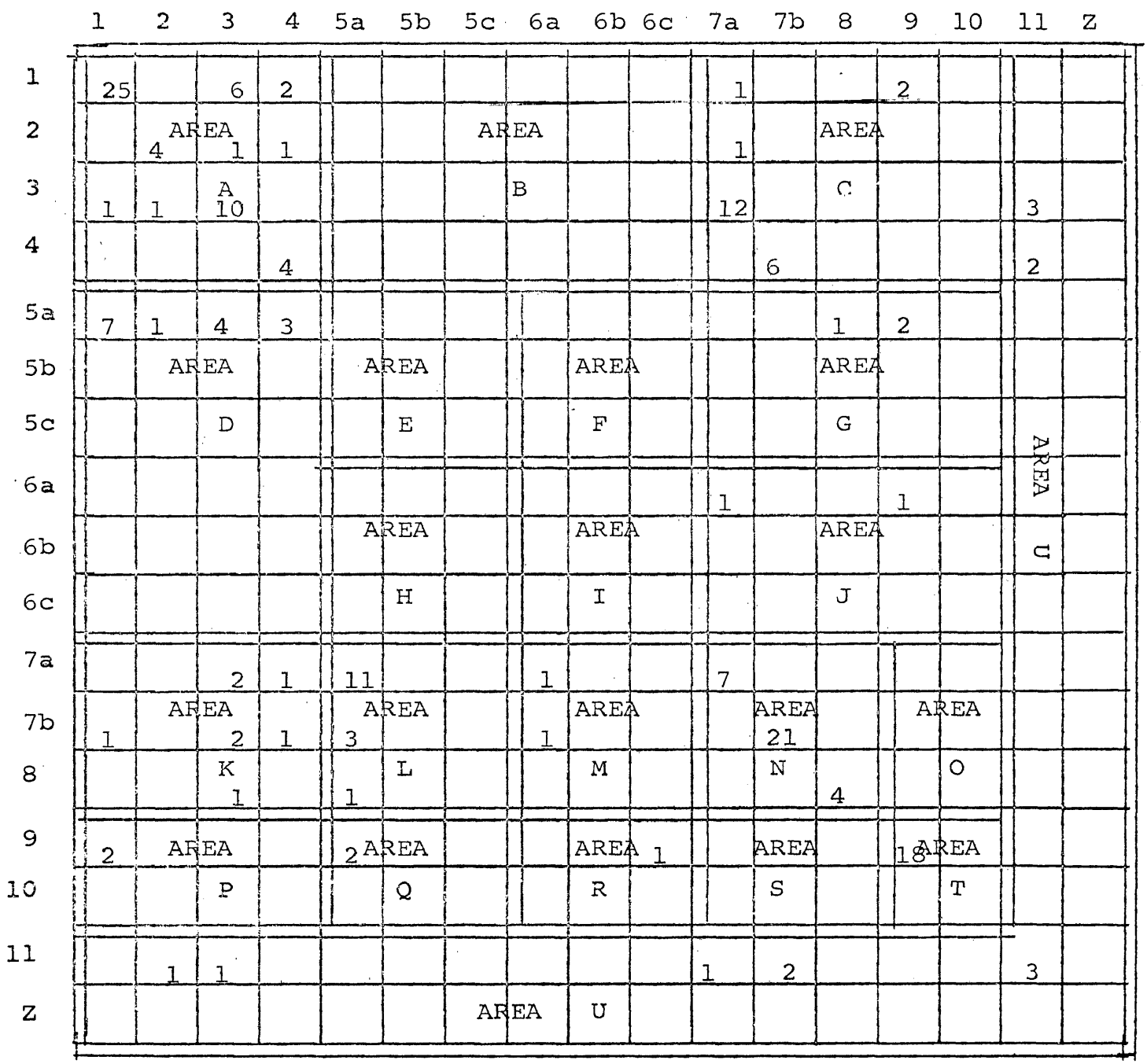
Date: 4-21-71

Tallies: O, P, Q, R, S, and T: 49

MATRIX 37

COLUMNS 82

ROWS



Teacher: A-3

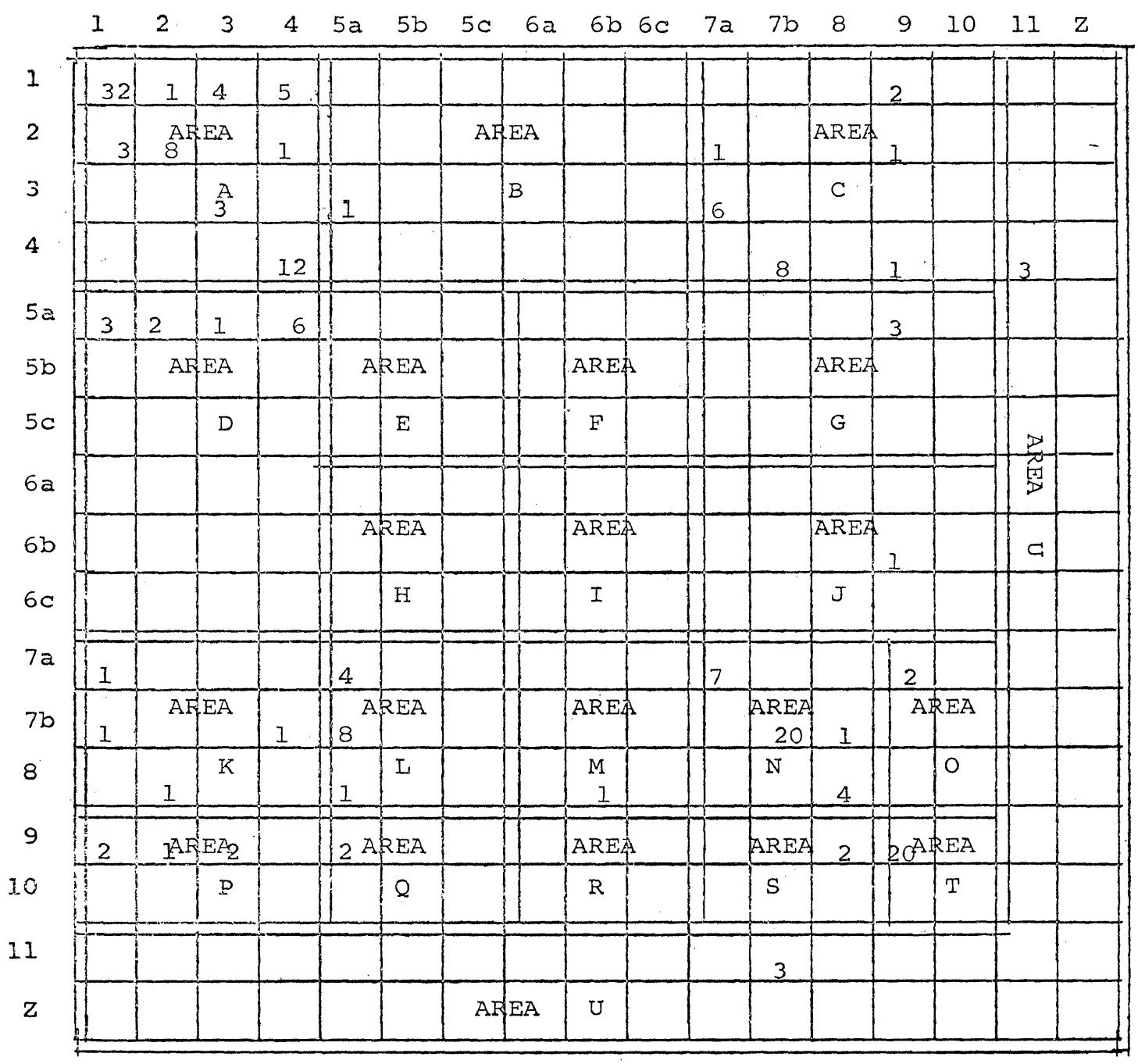
Date: 3-18-71

Tallies: O, P, Q, R, S, and T: 23

MATRIX 38

COLUMNS

ROWS



Teacher: A-3

Date: 3-31-71

Tallies: O, P, Q, R, S, and T: 29

MATRIX 39

COLUMNS 84

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	10	3	1	2										2			
2		31 AREA					AREA		2			1	AREA	3		4	
3			A 3					B			5		C				
4	1			5								5				1	
5a	4	2		2	1									2		1	
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a									1								
6b		1	1		AREA				AREA				AREA			1	
6c						H			I				J				
7a				1	4												
7b	1	AREA	1	2	2	AREA			AREA			AREA 24			AREA		
8			K			L			M			N			O		
9	2	AREA 1			5	AREA		1	AREA			AREA		2	AREA		
10			P			Q			R			S			T		
11		4												3		13	
Z							AREA		U								

Teacher: A-3

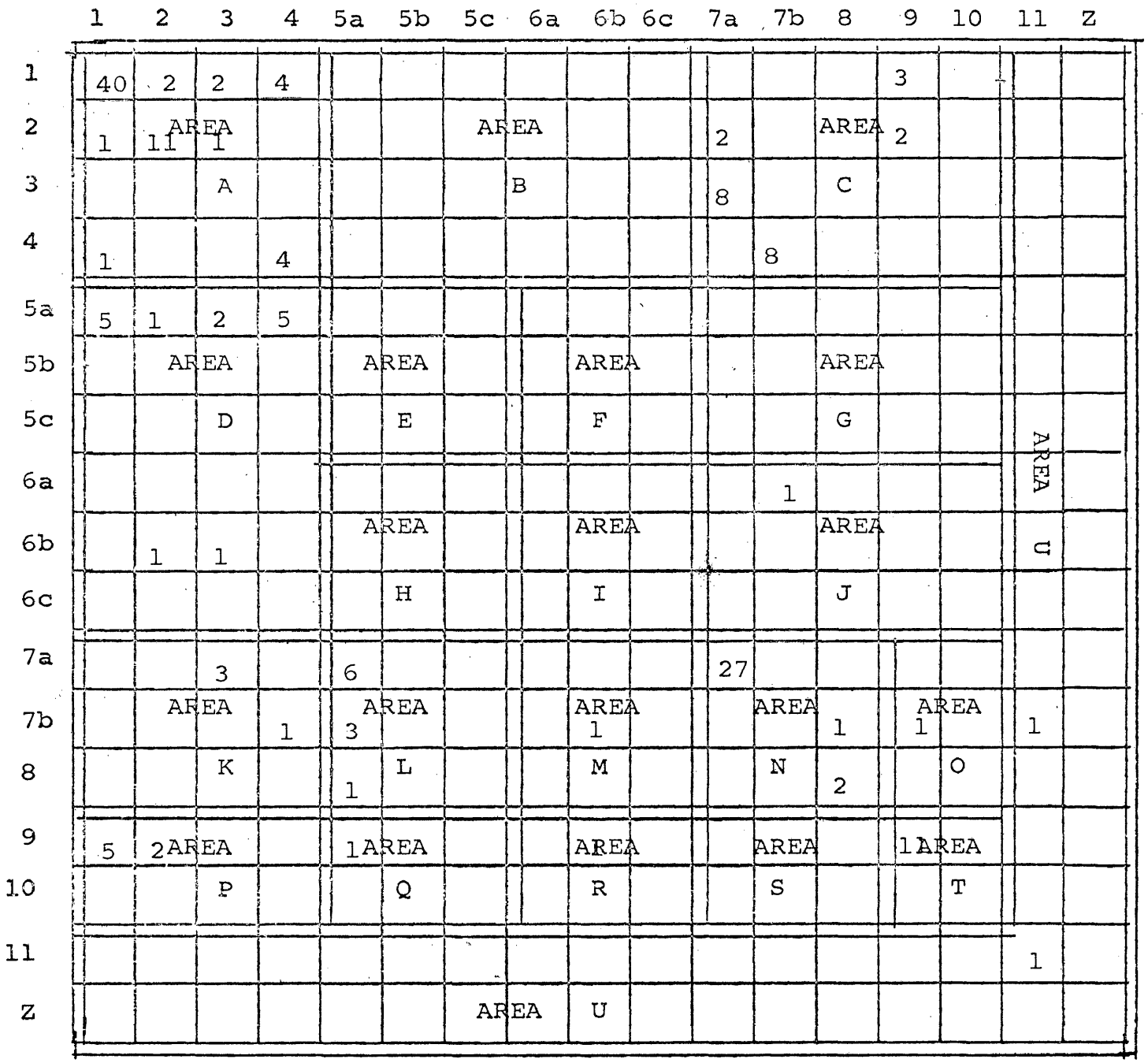
Date: 4-22-71

Tallies: O, P, Q, R, S, and T: 30

MATRIX 40

COLUMNS 85

ROWS



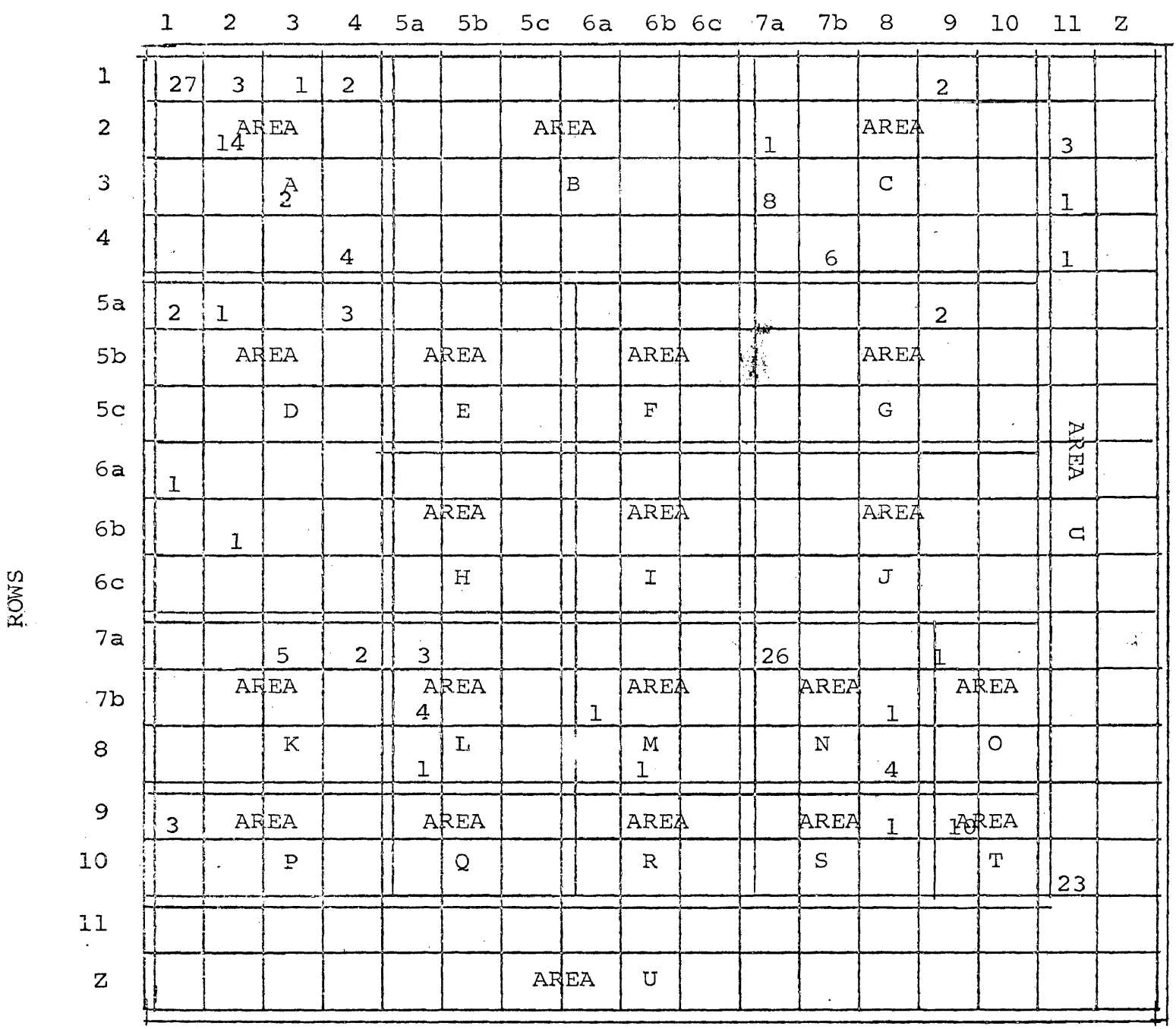
Teacher: A-4

Date: 3-19-71

Tallies: O, P, Q, R, S, and T: 21

MATRIX 41

COLUMNS



Teacher: A-4

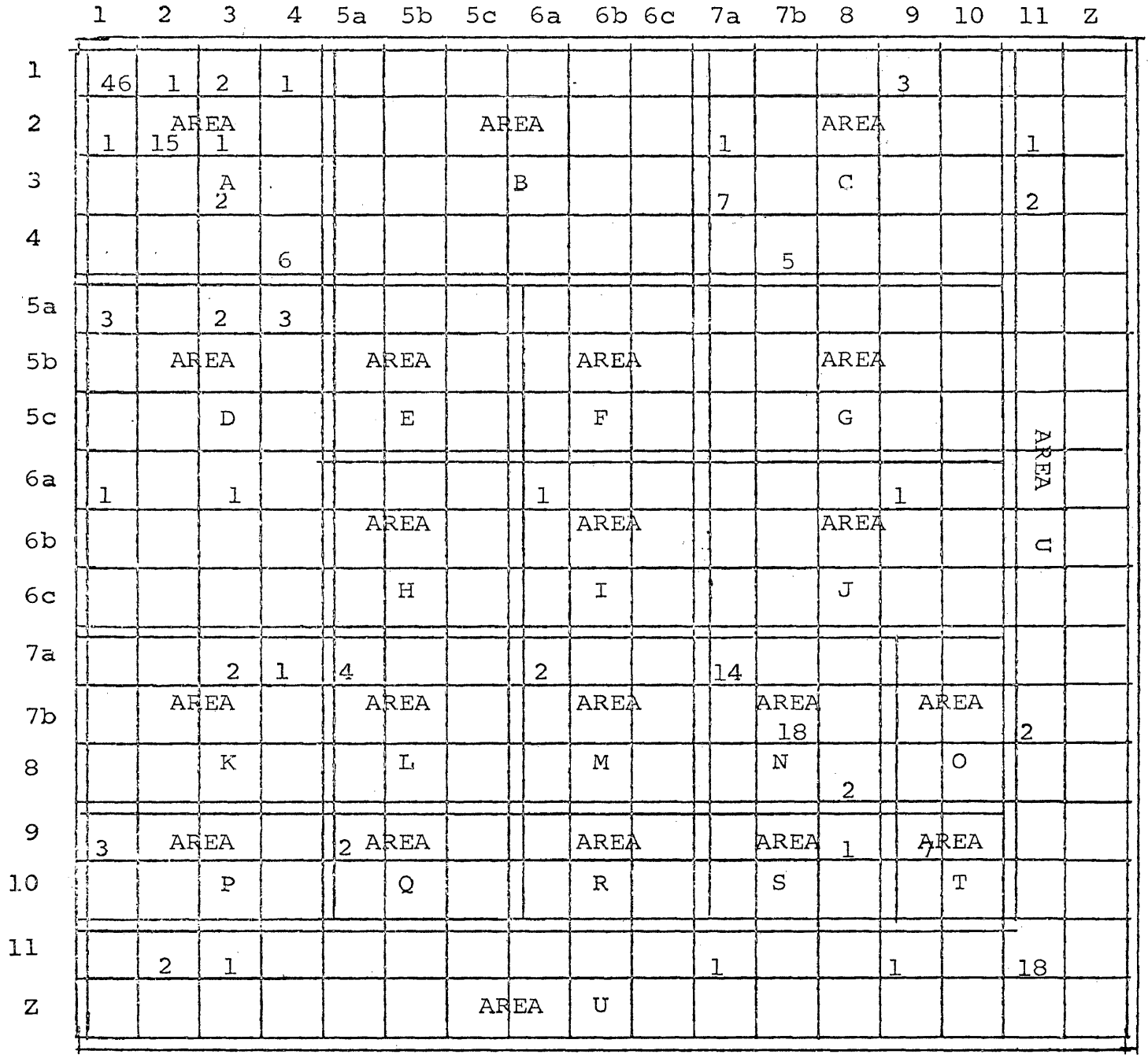
Date: 3-29-71

Tallies: O, P, Q, R, S, and T: 15

MATRIX 42

COLUMNS

ROWS



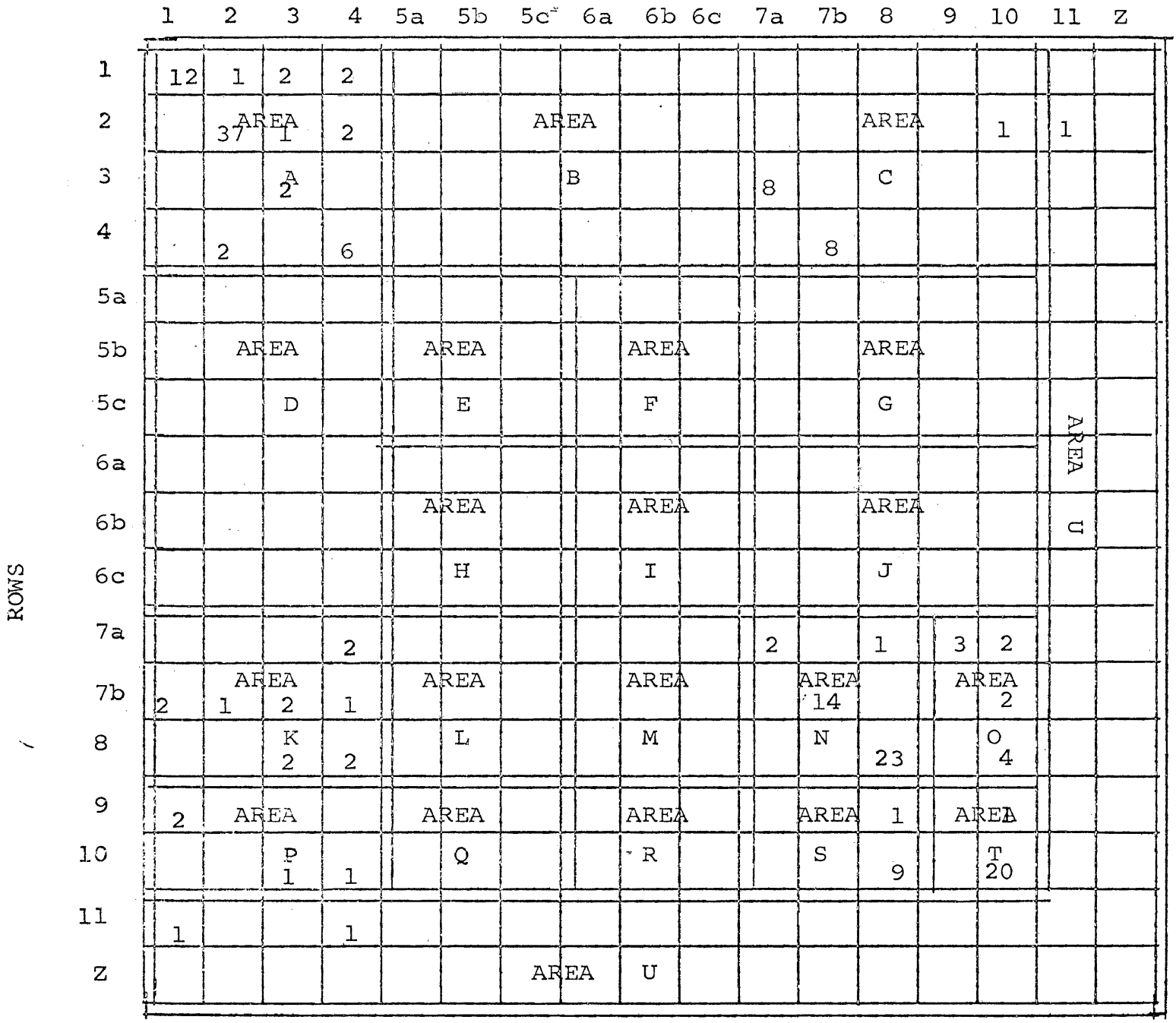
Teacher: A-4

Date: 4-20-71

Tallies: O, P, Q, R, S, and T: 13

MATRIX 43

COLUMNS 88



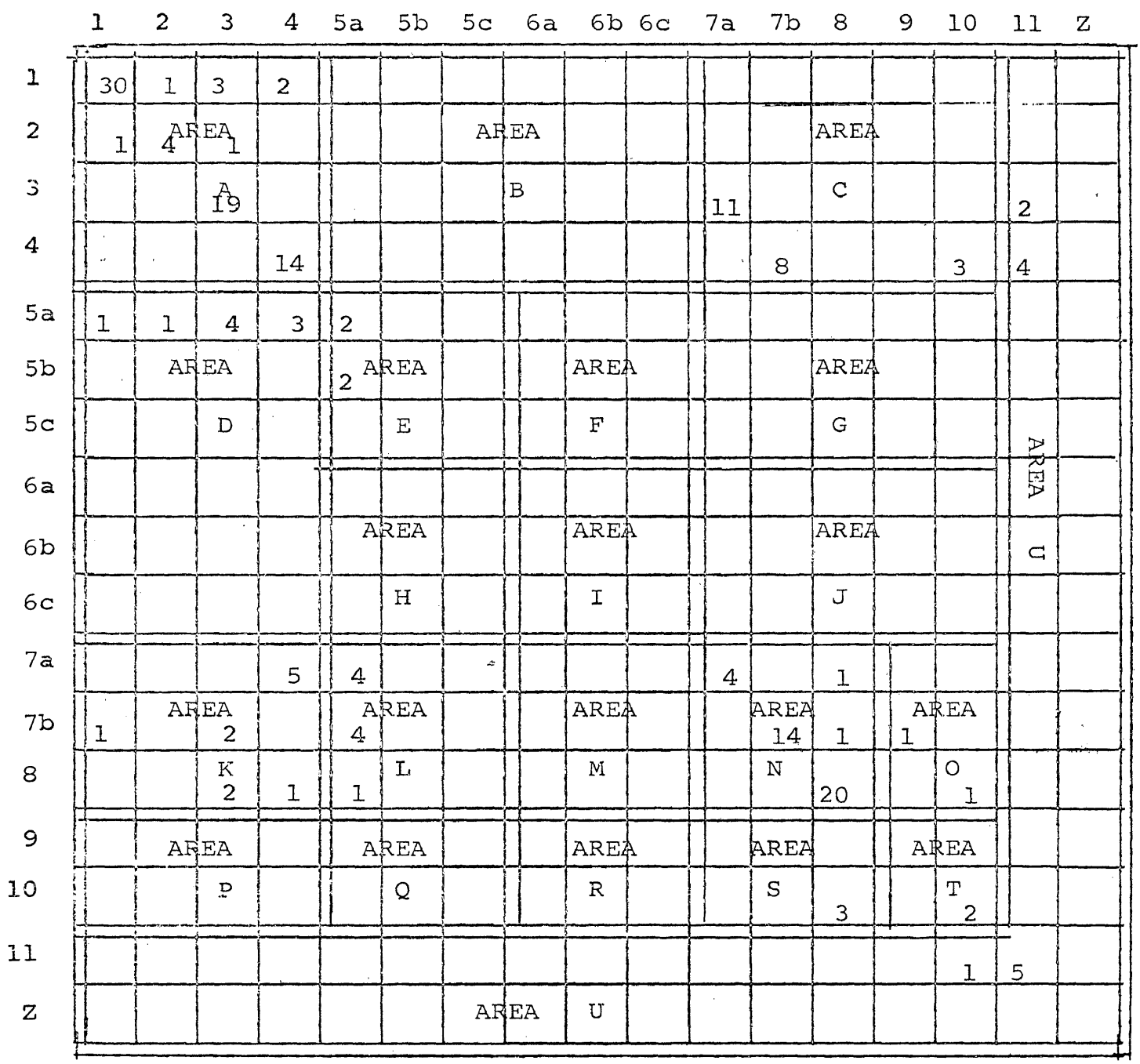
Teacher: A-5

Date: 3-22-71

Tallies: O, P, Q, R, S, and T: 51

MATRIX 44

COLUMNS 89



Teacher: A-5

Date: 4-1-71

Tallies: O, P, Q, R, S, and T: 8

MATRIX 45

COLUMNS

ROWS

	1	2	3	4	5a	5b	5c	6a	6b	6c	7a	7b	8	9	10	11	Z
1	7			2	1								1				
2		AREA 4					AREA					1	AREA		2	1	
3			A 1					B			3		C				
4	1	1		12	1							3					
5a	2		1	2							1				2	1	
5b		AREA			AREA				AREA				AREA				
5c			D			E			F				G			AREA	
6a																	
6b					AREA				AREA				AREA			U	
6c						H			I				J				
7a				1							1			2			
7b		AREA 1			AREA 2				AREA			AREA 32		AREA 1	1		
8	1	1	K		2	L			M			N	36		O 4		
9		AREA			1	AREA			AREA			AREA	2	AREA	1	1	
10		1	P		1	Q			R			S	6		T 29		
11														1		5	
Z							AREA		U								

Teacher: A-5

Date: 4-23-71

Tallies: O, P, Q, R, S, and T: 56