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ABSTRACT

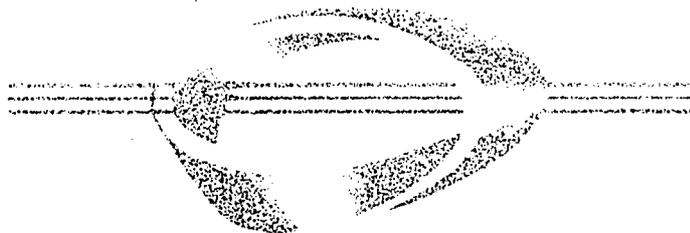
Since the development of primary perceptual abilities in the child depends on a variety of factors that may differ distinctly in comparison with an adult, the present study purposed to discover a set of objects which the child himself relates with school, thus removing any adult bias created by this divergence in perceptual viewpoints. Results of the study, which used 405 students in selected classrooms, and which confirmed the hypotheses, indicated that: 1) A group of objects does exist which primary school children associate with school; 2) There are perceptual differences of the child and the adult, and there is need for evaluation of the adult-experimenter mode in selecting stimuli to be used in such studies; 3) There are differences between the lists precipitated by degree of common experience, complexities of the classroom, and differential skills; 4) Perceptions of objects as school-related tend to be more uniform at the more advanced levels; and 5) Race and sex significantly affect primary school age children's perceptions of objects as school-related. Appendices give examples of a child's drawings of his school and duplications of stimulus figures. (LH)

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**IDENTIFICATION OF SCHOOL-RELATED
OBJECTS AS PERCEIVED BY CHILDREN
ON PRIMARY SCHOOL LEVELS**



William E. Walker

Master's thesis, Peabody College, August 71
and paper to be presented to Southeastern
Psychological Association April 1972 in
Atlanta, Georgia.

Professional Paper 71-5

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Introduction

The child aged five to eight is normally involved in the development of primary perceptual abilities. These abilities depend on the amount of training the senses have undergone, the child's background, and the attention he is willing and able to give a source of stimulation. Because these factors differ distinctly when comparing a child with an adult, it is expected that the child's perception may not conform to that of the adult. The child may relate objects or stimulations perceptually that an adult faced with the same problem would not. The purpose of this study was to discover a set of objects which the child himself relates with school, thus removing any adult bias created by this divergence in perceptual viewpoints.

Background

Researchers in child development typically utilize their own vantage point as adults and as experimenters in selecting the independent aspects involved in their studies. Their selections may be based on interpretations of empirical data, logical assumptions, or arbitrary choice, each of which may reflect the adult-experimenter mode. In doing so they neglect perceptions which the child may bring with him into the experimental situation with exception of those on which there are experimental measures. The possibility that these perceptions

may differ from those of the adult researcher is dependent on the level of discrimination the child has attained.

These modern adult-experimenter efforts involved in controlling an experimental setting surpass those of the systematic approach common to early psychological manipulations as cited by Brunswick (1947). His work stressed the need for functional designs in experimentation which would be representative of the overall situation, the molar as opposed to the molecular. Brunswick outlined his criteria in a study of perception which later served as a portion of the foundation of the ecological movement in psychology and education.

The ecological investigators are interested in the behavior stream in a natural setting, a behavior setting, as opposed to any overt manipulation (Barker, 1963). As a result of this interest, ecological psychologists attend to detail with respect to the analysis of behavior settings and the physical, social, and behavioral elements which comprise them (Willems, 1968). Within this taxonomic problem again arises the adult-experimenter flaw. Schoggen (1963) does demonstrate the ecologist's concern for the child's perception in listing the secondary principles for identification of an environmental force unit (EFU) to be noted in a specimen record:

In general, it is assumed that there is a high congruence between the agent's and the child's perceptions of the agent's behavior. In the event of a

discrepancy, however, as when the child misunderstands the agent's objective, the analyst marks the EFU consistent with the child's interpretation of the agent's behavior (p. 50).

Clearly, though, it is the analyst's personal perception of the child's perception which is utilized. The child's actual vantage is again ignored.

The adult-experimenter mode is in evidence in the disinterest in the child's discrimination of a setting or environmental situation as task-oriented. In particular, within the area of early education, information concerning the child's recognition of a setting, i.e., the school, as learning related has been negligible. Investigators directly or indirectly concerned with such aspects normally rely on the methods stated above for their selections.

Many researchers have neglected the point of view of the child although they have demonstrated the value of an environment composed of creative and imaginative materials in molding a successful learning situation. Reese (1954) described the necessity of these types of materials in both the school environment and that of the child's play in insuring the most successful intellectual development. Mayberry (1952) enumerated types of objects which above average learners on a preschool level utilized in their daily play and tasks.

A specific example of researcher dependence on adult assumptions can be found in the development of the Social Schemata Self Concept Test (SSSCT) by Norris, Ellsworth,

Glasnapp, and Jackson (1968). This technique embodied an object-person orientation as the child manipulated felt figures on a flannel-covered board. The child was asked to replace sets of figures after first viewing them for a short time. Design of the instrument required the use of representations of 11 objects which were to be considered school-related (book, chalkboard, easel, tablet, crayons, school, teacher, bus) or play-related (ball, wagon, boat). Stimulus objects included in these sets were selected through classroom observations, inspection of school supply catalogs, and discussion with the supervisor of a non-graded school from which subjects were chosen for the study. This use of the adult-experimenter vantage and the failure of the SSSCT to achieve expected results served as a major impetus for the present study.

Wotton (1964) noted that today's classrooms were environmentally much like the home and play surroundings of many middle class and other children due to the presence of a great many of the same features and objects, including record players, art materials, books, globes, pencils, crayons, etc. This overlap is extreme for the primary grade levels in which activities are more play oriented in the transition from home to school. The child has not reached the levels of sophistication in subject areas to require the special materials which will be encountered in later years of education. Due

to this overlap, not all objects in the school environment are perceived by the child as peculiarly school-related. There are many duplications from other settings which may lend an object connotations of several situations.

Perception concerns categorization by an individual of what he sees, hears, touches, smells, or feels (Mussen et al., 1963). This categorization develops as the child does. It is this difference in stages of development which may produce different perceptions in the child and the adult. Inhelder and Piaget (1958) found that the early school years present a picture of greatly changing perception and logic for the child. The more advanced child tends to be more discriminating, his perception changing over relatively short periods of development.

Crow and Crow (1953) state that various perceptions arising from differential home backgrounds are more prominent in the first school year. Later the child becomes more like his peers in passing through a sequence of perceptual patterns. The works of Inhelder and Piaget support these statements.

The Hypotheses

The present study is an investigation of school-relatedness as perceived by children in a non-graded primary school. A sorting task was utilized with children as grouped on these levels of advancement. The hypotheses considered were:

1. There exists a set of objects which primary school children consider school-related on a near unanimity basis.
2. The composition of the pool of objects considered school-related will change over levels of advancement.
3. The pool of objects considered school-related would be larger for children in the more advanced levels.

The Method

Subjects

The subject pool involved in the study consisted of the 405 students in the 15 selected classrooms of the primary unit of the Murfreesboro, Tennessee, City Schools. The primary unit is a non-graded program emphasizing levels of reading ability in determination of advancement. Twelve steps of advancement are recognized within the program. Most children move through these in three years and enter a traditional elementary program at the fourth grade level. For the purpose of the present study the 12 steps of the unit were divided into three levels of advancement as pictured in Figure 1.

Five classrooms were selected at random from each of the three constituted levels. The levels included 16, 17, and 18 classrooms respectively. All 405 students in these 15 classrooms were utilized in Phase I of the study.

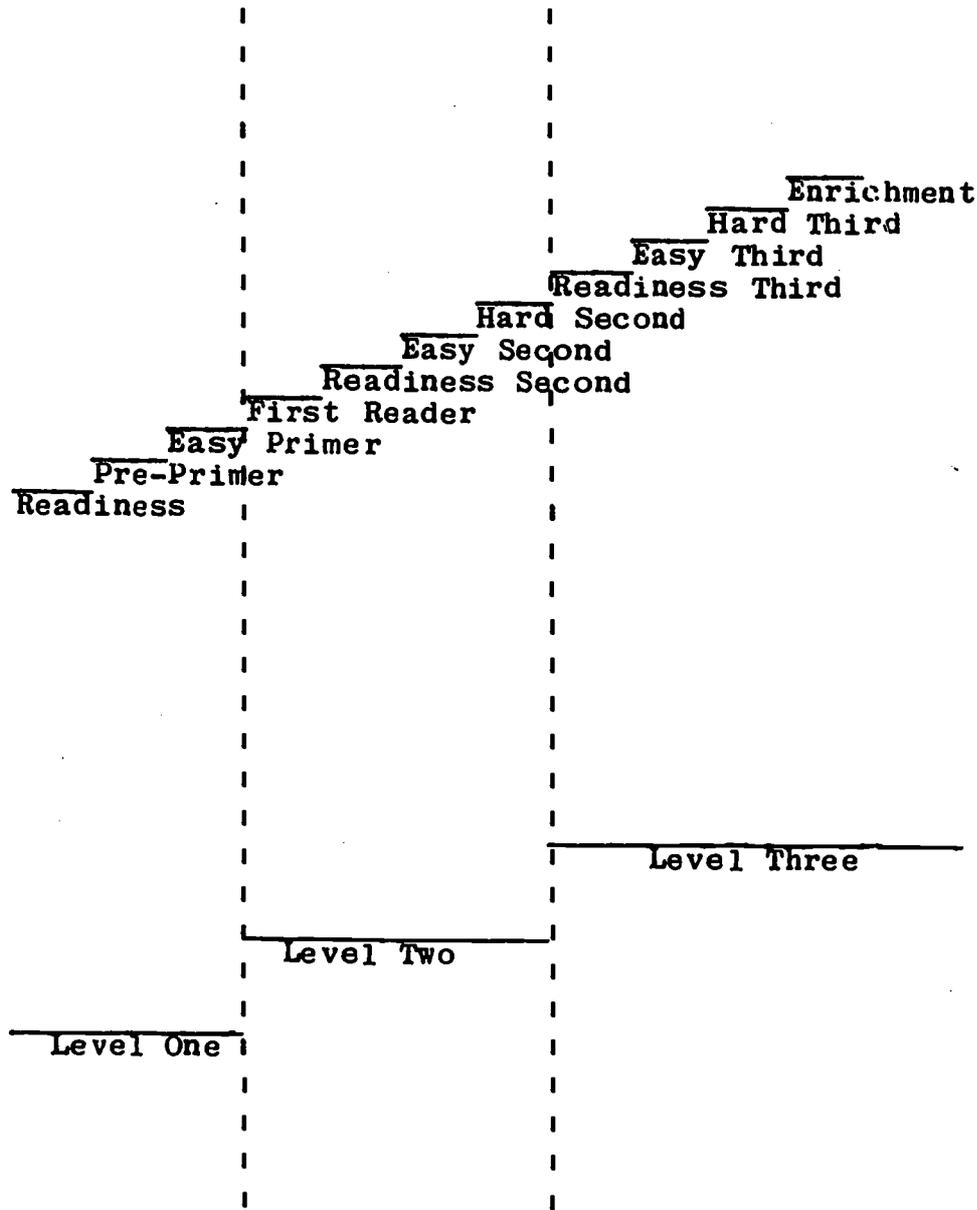


Figure 1. Constitution of Advancement Levels.

Five students were chosen at random from each of the 15 classrooms for Phase II. This selection produced 75 subjects, 25 each from the three levels of advancement.

Procedure

Phase I dealt with the preparation of a master list of objects found in the school environment. Two adult male graduate students separately visited each of the classrooms selected for the study. Each investigator listed each object he observed in the classroom. The teachers in the classes also suggested items to be included in the listing. Separate listings were prepared of objects observed by the investigators in areas near the classrooms, such as hallways, offices, cafeterias, and playgrounds.

At the time of the listing the 15 teachers were asked to assign to their students as a homework project the drawing of pictures of "THE INSIDE OF MY SCHOOL" and "THE OUTSIDE OF MY SCHOOL." Labeled sheets of paper were provided. An example is included in Appendix A. A note explaining the project was sent to the parents requesting that no help be given the child in his drawings. It was believed that outside the immediate school environment the students would be unable to fixate on objects in their vicinity in the classroom and would be more likely to draw those objects they identified with school.

The investigators listed 219 objects in the classrooms and surrounding areas. Comparisons between lists for the individual classrooms revealed small differences. Each classroom contained at least 89% of the objects in each of the other classrooms. Four judges (the two investigators and two female assistants schooled in art for the elementary grades) scanned the 364 student drawings collected. There were 94 objects which at least two of the judges were able to discern. Of these, 9 were not previously listed by the investigators and were added to the master list bringing the total to 228.

The master list was narrowed to 54 objects for the classification task in Phase II. This task was achieved by first eliminating each object originally noted no more than twice. The remaining reduction entailed combinations of like objects (two types of scissors, two types of projectors, etc.) and elimination of those objects too difficult to portray in the line drawing form utilized in Phase II. Also eliminated were objects judged transitory by the investigators, such as displays.

Each of the 54 objects chosen for further consideration was then drawn in black line form without shading on a white 3 inch by 5 inch card. Appendix B contains copies of the drawings.

In Phase II the line drawings were sorted into four

categories by the 75 subjects. Each subject was brought individually into a room with a single investigator who asked to play a game with him. The two sat at a small, low table on which were four white trays approximately 6 inches by 9 inches in size. The trays were labeled Home, Church, School, and Park. These four were selected as the major behavior settings of the primary age child. The subject was asked to read the labels, pointing to each in succession. If he was unable to read the four words, the task was administered orally with the investigator holding each drawing before the child and asking where it belonged. If the subject succeeded in identifying the labels, he was told to sort the pictures one by one into the trays placing each object "where it belongs."

Each subject was told to complete the task as quickly as possible and to inquire if he could not recognize a drawing. The order of presentation of the drawings was altered for each subject by a shuffle of the cards. The trays were also randomly switched for subjects. The subject's responses were recorded, and any distinct hesitation was noted as a failure to place the object drawing in the "School" tray regardless of whether or not he eventually did. (This was not very extensive, 20 of 4,050 responses being noted as such.)

Results

The number of children assigning each object to the school tray is given in Table 1 for each advancement level and for the combined groups. Corresponding percentages also are presented. The hypothesis of existence of a set of objects which would be considered by consensus to be school-related was tested by a simple counting analysis. Objects assigned to the school tray by 90% of the children are enumerated in Table 2 for each of the three levels and for the group as a whole. Eleven objects reached criterion for the overall group with at least 68 of the children placing them in the school tray. Eight of these 11 reached a 95% level of agreement. Two, the pencil sharpener and the notebook, were assigned to the school category by all subjects involved in the sorting.

The hypothesis that the pool of objects considered school-related at different advancement levels was tested using Cohen's (1960) coefficient of agreement for nominal classifications. Eight of the objects were common to all advancement levels, the remainder of each list varying. The extent of agreement above chance was calculated for each possible comparison among the advancement levels. Each coefficient of agreement was then tested for significant difference from an expected perfect agreement. Results of these comparisons are presented in Table 3. Agreements

Table 1
 Objects, Number of Times Placed in School Tray, and Percent
 Agreement for Levels and Overall

| Object | 1st Level | | 2nd Level | | 3rd Level | | Overall | |
|--------------------|-----------|--------|-----------|--------|-----------|--------|---------|--------|
| | No. | % | No. | % | No. | % | No. | % |
| notebook | 25 | 100.00 | 25 | 100.00 | 25 | 100.00 | 75 | 100.00 |
| pencil sharpener | 25 | 100.00 | 25 | 100.00 | 25 | 100.00 | 75 | 100.00 |
| lunch tray | 24 | 96.00 | 25 | 100.00 | 25 | 100.00 | 74 | 98.66 |
| ruler | 24 | 96.00 | 25 | 100.00 | 25 | 100.00 | 74 | 98.66 |
| screen | 23 | 92.00 | 25 | 100.00 | 25 | 100.00 | 73 | 97.33 |
| American flag | 24 | 96.00 | 25 | 100.00 | 24 | 96.00 | 73 | 97.33 |
| crayons | 23 | 92.00 | 25 | 100.00 | 25 | 100.00 | 73 | 97.33 |
| writing chart | 22 | 88.00 | 25 | 100.00 | 25 | 100.00 | 72 | 96.00 |
| abacus | 24 | 96.00 | 25 | 100.00 | 22 | 88.00 | 71 | 94.66 |
| projector | 25 | 100.00 | 23 | 92.00 | 23 | 92.00 | 71 | 94.66 |
| globe | 21 | 84.00 | 24 | 96.00 | 23 | 92.00 | 68 | 90.66 |
| chalkboard | 22 | 88.00 | 18 | 72.00 | 24 | 96.00 | 64 | 85.33 |
| exit sign | 17 | 68.00 | 22 | 88.00 | 24 | 96.00 | 63 | 84.00 |
| overhead projector | 21 | 84.00 | 21 | 84.00 | 21 | 84.00 | 63 | 84.00 |
| stapler | 22 | 88.00 | 19 | 76.00 | 21 | 84.00 | 62 | 82.66 |
| loud speaker | 17 | 68.00 | 22 | 88.00 | 22 | 88.00 | 61 | 81.33 |
| file cabinet | 19 | 76.00 | 19 | 76.00 | 23 | 92.00 | 61 | 81.33 |
| water fountain | 20 | 80.00 | 22 | 88.00 | 18 | 72.00 | 60 | 80.00 |
| lunch box | 18 | 72.00 | 18 | 72.00 | 24 | 96.00 | 60 | 80.00 |
| easel | 18 | 72.00 | 18 | 72.00 | 24 | 96.00 | 60 | 80.00 |
| bulletin board | 18 | 72.00 | 21 | 84.00 | 20 | 80.00 | 59 | 78.66 |
| book satchel | 19 | 76.00 | 17 | 68.00 | 21 | 84.00 | 57 | 76.00 |
| chair, child's | 20 | 80.00 | 16 | 64.00 | 21 | 84.00 | 57 | 76.00 |
| earphones | 17 | 68.00 | 17 | 68.00 | 22 | 88.00 | 56 | 74.66 |
| jungle gym | 16 | 64.00 | 18 | 72.00 | 20 | 80.00 | 54 | 72.00 |

Table 1 (continued)

| Object | 1st Level | | 2nd Level | | 3rd Level | | Overall | |
|-------------------|-----------|-------|-----------|-------|-----------|-------|---------|-------|
| | No. | % | No. | % | No. | % | No. | % |
| eraser | 20 | 80.00 | 17 | 68.00 | 17 | 68.00 | 54 | 72.00 |
| slide | 18 | 72.00 | 17 | 68.00 | 18 | 72.00 | 53 | 70.66 |
| tablet | 18 | 72.00 | 18 | 72.00 | 17 | 68.00 | 53 | 70.66 |
| towel dispenser | 15 | 60.00 | 15 | 60.00 | 20 | 80.00 | 52 | 69.33 |
| book rack | 16 | 64.00 | 16 | 64.00 | 20 | 80.00 | 52 | 69.33 |
| scissors | 18 | 72.00 | 12 | 48.00 | 22 | 88.00 | 52 | 69.33 |
| coat hook | 18 | 72.00 | 18 | 72.00 | 16 | 64.00 | 52 | 69.33 |
| school bus | 16 | 64.00 | 15 | 60.00 | 21 | 84.00 | 52 | 69.33 |
| book | 13 | 52.00 | 16 | 64.00 | 22 | 88.00 | 51 | 68.00 |
| paper cutter | 18 | 72.00 | 17 | 68.00 | 16 | 64.00 | 51 | 68.00 |
| lunch table | 13 | 52.00 | 19 | 76.00 | 17 | 68.00 | 49 | 65.33 |
| clock | 15 | 60.00 | 19 | 76.00 | 14 | 56.00 | 48 | 64.00 |
| fire extinguisher | 13 | 52.00 | 16 | 64.00 | 19 | 76.00 | 48 | 64.00 |
| school building | 17 | 68.00 | 13 | 52.00 | 16 | 64.00 | 46 | 61.33 |
| fluorescent light | 14 | 56.00 | 15 | 60.00 | 17 | 68.00 | 46 | 61.33 |
| light switch | 13 | 52.00 | 16 | 64.00 | 17 | 68.00 | 46 | 61.33 |
| teacher's desk | 16 | 64.00 | 12 | 48.00 | 16 | 64.00 | 44 | 58.66 |
| globe lights | 14 | 56.00 | 16 | 64.00 | 11 | 44.00 | 41 | 54.66 |
| book case | 12 | 48.00 | 14 | 56.00 | 15 | 60.00 | 41 | 54.66 |
| piano | 11 | 44.00 | 16 | 64.00 | 12 | 48.00 | 39 | 52.00 |
| blocks | 13 | 52.00 | 14 | 56.00 | 11 | 44.00 | 38 | 50.66 |
| blinds | 12 | 48.00 | 17 | 68.00 | 9 | 36.00 | 38 | 50.66 |
| record player | 11 | 44.00 | 14 | 56.00 | 9 | 36.00 | 34 | 45.33 |
| aquarium | 14 | 56.00 | 10 | 40.00 | 9 | 36.00 | 33 | 44.00 |
| television | 12 | 48.00 | 12 | 48.00 | 7 | 28.00 | 31 | 41.33 |
| plant | 10 | 40.00 | 13 | 52.00 | 6 | 24.00 | 29 | 38.66 |
| viewmaster | 6 | 24.00 | 14 | 56.00 | 8 | 32.00 | 28 | 37.33 |
| sink | 9 | 36.00 | 10 | 40.00 | 8 | 32.00 | 27 | 36.00 |
| trash can | 7 | 28.00 | 7 | 28.00 | 5 | 20.00 | 19 | 25.33 |

Table 2
Objects Meeting 90% Criterion for Each
Advancement Level and Overall

| Object | <u>1st Level</u> % | <u>2nd Level</u> % | <u>3rd Level</u> % | <u>Overall</u> % |
|------------------|---------------------------|---------------------------|---------------------------|---------------------|
| notebook | 100.00 | 100.00 | 100.00 | 100.00 |
| pencil sharpener | 100.00 | 100.00 | 100.00 | 100.00 |
| lunch tray | 96.00 | 100.00 | 100.00 | 98.66 |
| ruler | 96.00 | 100.00 | 100.00 | 98.66 |
| American flag | 96.00 | 100.00 | 96.00 | 97.33 |
| screen | 92.00 | 100.00 | 100.00 | 97.33 |
| crayons | 92.00 | 100.00 | 100.00 | 97.33 |
| writing charg | | 100.00 | 100.00 | 96.00 |
| abacus | 96.00 | 100.00 | | 94.66 |
| projector | 100.00 | 92.00 | 92.00 | 94.66 |
| globe | | 92.00 | 92.00 | 90.66 |
| exit sign | | | 96.00 | |
| lunch box | | | 96.00 | |
| chalkboard | | | 96.00 | |
| easel | | | 96.00 | |
| file cabinet | | | 92.00 | |

Table 3
Comparisons of Actual Agreements with Expected
Agreements Between Advancement Levels

| Comparison | Cohen's | z |
|-------------------|---------|-------|
| First with Second | 0.90 | 1.33 |
| First with Third | 0.573 | 3.12* |
| Second with Third | 0.70 | 2.64* |

*p .05.

between the first and third levels and between the second and third levels were significantly different from expected perfect agreement.

The hypothesis that the number of objects considered school-related would increase over the three advancement levels was tested using McNemar's (1961) test for correlated proportions. The number of objects reaching criterion for the individual levels were 9, 11, and 15 for the first, second, and third levels respectively. The chi square statistic was calculated for each pairing of advancement levels (see Table 4). The responses of only the first and third advancement levels were significantly different.

Table 4
Comparisons of Length of List Over Advancement
Levels Using McNemar's Chi Square

| Comparison | McNemar's |
|-------------------|-----------|
| First with Second | 1.84 |
| First with Third | 4.21* |
| Second with Third | 2.19 |

*p .05.

Discussion

The central hypothesis of this study was substantiated with the discovery of 11 objects which met the criterion of 90% agreement. It appears that a set of objects does exist which primary school age children perceive as school-related.

Eight objects were on individual lists for each of the advancement levels, evidencing a high degree of consistency. The remaining three were absent from one of the individual lists. Although the remaining three items did not reach the arbitrary 90% criterion level, the percentages for the globe (84%) and the writing chart (88%) on the first level and the abacus (88%) on the most advanced level showed great consistency of response. The figure for the abacus may have been higher except that there was no abacus in two of the

third level classrooms. (The globe lights and the fluorescent lights were the only other instances in which a child had no opportunity to come in contact with objects on the presentation list during each day. Each appeared in or near his class.)

Despite the general consensus on a pool of school-related objects, Cohen's revealed differences in agreement between the most advanced level and the other two. The second hypothesis inferring varying compositions of the lists over levels of advancement, therefore, was also supported. The addition of such objects as the writing chart, the globe, the file cabinet, the easel, the exit sign, and the chalkboard in progressing through the advancement levels suggests a wider range of skills and discrimination. The more advanced child is certainly more involved in such tasks as writing, reading, and geography. Further explanation may lie in the increased complexity and greater distinctiveness from home settings of more advanced classrooms. For example, subject area centers were noted more frequently in these third level classrooms. Although the classrooms selected at the three levels differed only slightly with respect to presence of the objects on the presentation list, there may have been differences in the saliency of the objects for children at the different levels.

The substantiated postulation of differences in make-up

of the lists of school-related objects over the advancement levels came partly as a byproduct of differences in list length. The greater discrimination and agreement of the more advanced children is consistent with the findings of Crow and Crow (1953) who suggest that the higher number of agreements may be attributed to a conformity of perception precipitated by common experiences in the earlier years of school. Future study of even more advanced children may reveal a continued pattern of converging agreement. Pre-school children, on the other hand, may be even more diverse in their selections of school-related objects.

The findings in the present study call into question the adult assumption of school-relatedness utilized by Norris et al. (1968) in the development of the SSSCT. Of the eight objects used in that study, seven were involved in the present investigation. The eighth, a female figure designed to represent a teacher, was not considered a distinguishable object by the author. Only one of the SSSCT objects met criterion for denotation as a school-related object as perceived by the primary age child. Subjects consistently placed the crayons in the school tray. Two other SSSCT items, the chalkboard and the easel, were considered school-related only by the most advanced children. Their overall percentages were 80% and 85% respectively, however, and so were very close to criterion. The remaining four

objects, the school building, the book, the tablet, and the school bus, were placed in the school tray in the majority of cases (60% to 70% over all levels), but they still fell far below the 90% criterion.

The findings of the present study should be verified in other school systems to assure that the same objects are seen as school related in other localities. Although they appear to adult observers to be universal features of school settings, there is the possibility that they will not appear to have such distinctive school relevance to children in other communities.

If one assumes that the findings of this study are generalizable to other locales, they would support a recommendation for revision of the SSSCT. The new set of school-related objects employed in the flannel board test should include a notebook, pencil sharpener, lunch tray, American flag, projector, ruler, screen, and crayons. The school building, school bus, book, tablet, chalkboard, and easel previously employed might be dropped in favor of the objects more generally seen as school-related by the children themselves.

Although there were no advance hypotheses concerning relationships between number of objects seen as school-related and the sex and race of the child, a post hoc analysis was suggested by the data collected as shown in Table 5.

Table 5
Number of School-Related Objects by Subjects

| ID | Level | Sex | Race | No. in School Tray | ID | Level | Sex | Race | No. in School Tray |
|----|-------|-----|------|--------------------|----|-------|-----|------|--------------------|
| 1 | 1 | M | W | 37 | 39 | 2 | F | W | 46 |
| 2 | 1 | F | W | 37 | 40 | 2 | M | W | 39 |
| 3 | 1 | F | B | 38 | 41 | 2 | F | B | 36 |
| 4 | 1 | M | B | 41 | 42 | 2 | F | B | 39 |
| 5 | 1 | M | W | 36 | 43 | 2 | F | W | 38 |
| 6 | 1 | M | B | 51 | 44 | 2 | M | W | 41 |
| 7 | 1 | F | B | 47 | 45 | 2 | M | W | 41 |
| 8 | 1 | F | W | 37 | 46 | 2 | M | W | 41 |
| 9 | 1 | F | W | 29 | 47 | 2 | M | B | 52 |
| 10 | 1 | M | W | 41 | 48 | 2 | F | W | 43 |
| 11 | 1 | F | B | 34 | 49 | 2 | F | W | 38 |
| 12 | 1 | F | B | 41 | 50 | 2 | M | W | 45 |
| 13 | 1 | F | W | 12 | 51 | 3 | F | W | 36 |
| 14 | 1 | F | W | 34 | 52 | 3 | M | B | 36 |
| 15 | 1 | M | W | 33 | 53 | 3 | F | B | 38 |
| 16 | 1 | M | W | 22 | 54 | 3 | F | B | 35 |
| 17 | 1 | M | W | 41 | 55 | 3 | F | W | 38 |
| 18 | 1 | M | W | 42 | 56 | 3 | M | W | 45 |
| 19 | 1 | M | B | 46 | 57 | 3 | M | W | 35 |
| 20 | 1 | F | W | 33 | 58 | 3 | F | W | 39 |
| 21 | 1 | F | W | 34 | 59 | 3 | F | W | 38 |
| 22 | 1 | F | W | 36 | 60 | 3 | F | W | 38 |
| 23 | 1 | M | W | 35 | 61 | 3 | M | W | 39 |
| 24 | 1 | M | B | 40 | 62 | 3 | F | W | 39 |
| 25 | 1 | F | B | 49 | 63 | 3 | M | W | 39 |
| 26 | 2 | M | W | 23 | 64 | 3 | F | W | 38 |
| 27 | 2 | M | W | 34 | 65 | 3 | M | W | 46 |
| 28 | 2 | F | W | 42 | 66 | 3 | M | W | 44 |
| 29 | 2 | M | W | 37 | 67 | 3 | M | W | 43 |
| 30 | 2 | F | B | 54 | 68 | 3 | M | W | 41 |
| 31 | 2 | M | W | 42 | 69 | 3 | F | W | 38 |
| 32 | 2 | F | W | 33 | 70 | 3 | M | B | 54 |
| 33 | 2 | M | W | 27 | 71 | 3 | F | W | 36 |
| 34 | 2 | F | B | 33 | 72 | 3 | F | W | 38 |
| 35 | 2 | F | B | 47 | 73 | 3 | M | B | 50 |
| 36 | 2 | F | W | 23 | 74 | 3 | M | W | 32 |
| 37 | 2 | M | W | 40 | 75 | 3 | M | W | 32 |
| 38 | 2 | F | B | 37 | | | | | |

$\bar{X}_{\text{Level 1}}=37.04$ $\bar{X}_{\text{Level 2}}=38.84$ $\bar{X}_{\text{Level 3}}=39.48$ $\bar{X}_{\text{All}}=38.45$

Table 6 summarizes this analysis of variance for a three factor design involving all 75 subjects classified according to race, sex, and advancement level.

Table 6
Analysis of Variance of Number Objects Placed
in School-Related Tray

| Source | SS | <u>df</u> | MS | F |
|------------------|---------|-----------|--------|----------|
| Between Subjects | 1272.92 | 11 | | |
| Grade Level (A) | 96.12 | 2 | 48.06 | 1.181 |
| Race (B) | 585.86 | 1 | 585.86 | 14.407** |
| Sex (C) | 282.30 | 1 | 282.30 | 6.942* |
| A X B | 104.43 | 2 | 52.21 | 1.284 |
| A X C | 12.35 | 2 | 6.17 | 0.151 |
| B X C | 103.28 | 1 | 103.28 | 2.540 |
| A X B X C | 88.56 | 2 | 44.28 | 1.089 |
| Within (Error) | 2561.73 | 63 | 40.66 | |
| Total | 3834.66 | 74 | | |

*p .05.

**p .001.

As can be seen in Table 6, neither the interaction nor the main effect of advancement level was significant. The children on each level tended to place around 38 of the drawings in the school tray. Possibly there was a limiting factor

as children might have felt a need to place some of the objects in other trays. The high percentage placed in the school tray is to be expected, however, since the stimulus objects were all originally found in the school setting.

Two effects in the post hoc analysis, the main effects of race and sex, reached significance at the .05 level. The male participants selected an average of 4.9 more objects as members of the school environment than did females. Black students placed 7.1 more objects per subject in the school-related category than did their white counterparts. These significant disparities can be rationalized in light of differential past experiences and backgrounds of boys and girls and black and white children. For example, boys at this age more concerned with outdoor activities while girls are expected to be involved in less active indoor ones where they are more likely to come in contact with objects also found in the school setting. The scarcity of such manufactured materials as those utilized in the study in the impoverished home environments characteristic of Southern black children would also tend to strengthen this differential. Sex and race by determining experiences and backgrounds would seem to be limiting factors in the development of percepts by primary school children.

In summary, the following conclusions were reached in the present study:

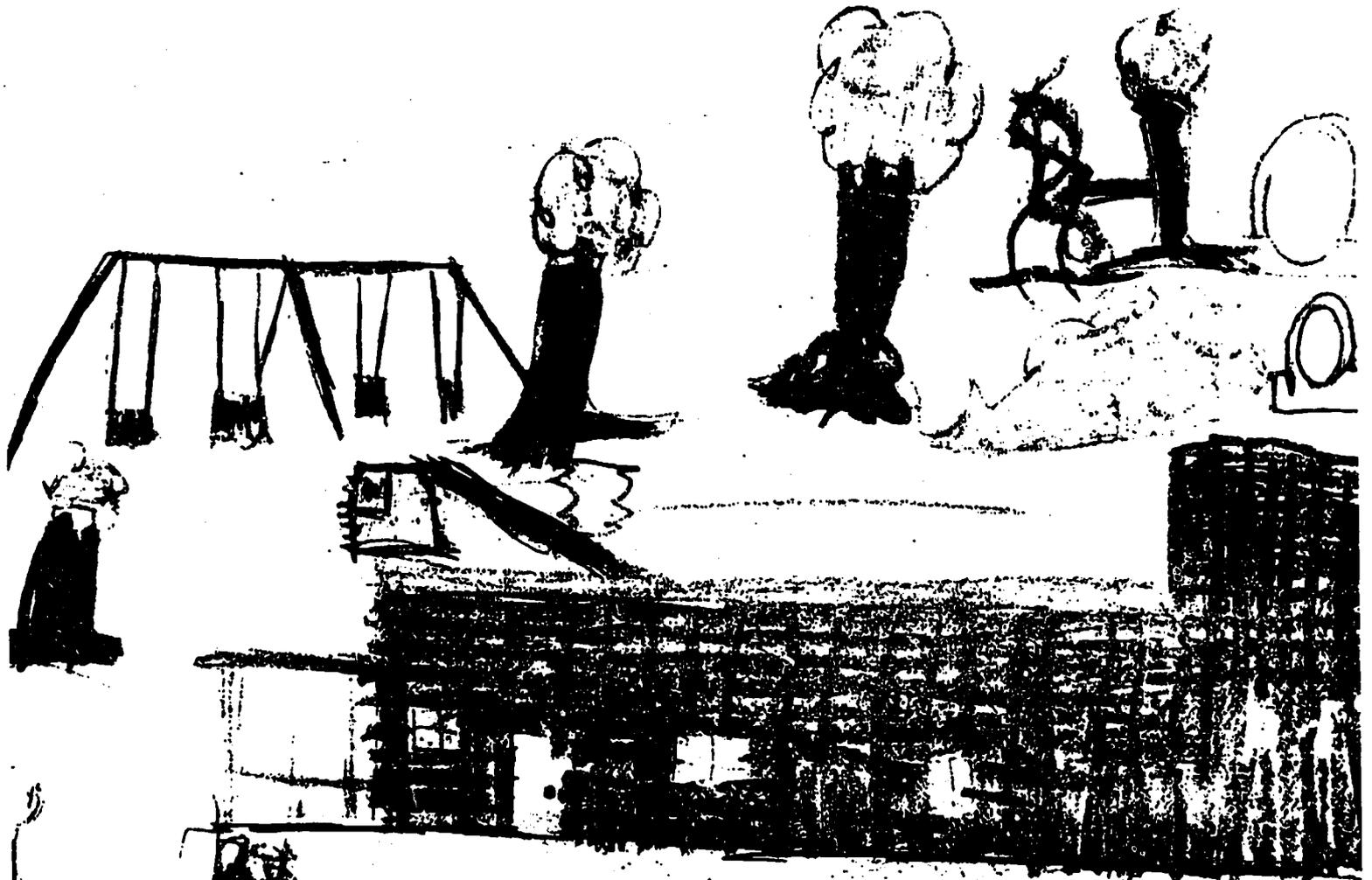
1. The discovery of a pool of objects on which a high percentage of children agree consistently across the advancement levels is evidence that a group of objects does exist which primary school children associate with school.
2. The noted discrepancy between the list compiled and utilized by the developers of the SSSCT and the list reaching criterion in the present study demonstrates the perceptual differences of the child and the adult and points out the need for evaluation of the adult-experimenter mode in selecting stimuli to be used in such studies.
3. Although the three advancement levels consistently agree on a number of objects, there are differences between the lists precipitated by degree of common experience, complexities of the classroom, and differential skills.
4. The perceptions of objects as school-related tend to be more uniform at the more advanced levels, a larger number of objects reaching the arbitrary criterion.
5. Race and sex significantly affect primary school age children's perceptions of objects as school-related.

REFERENCES

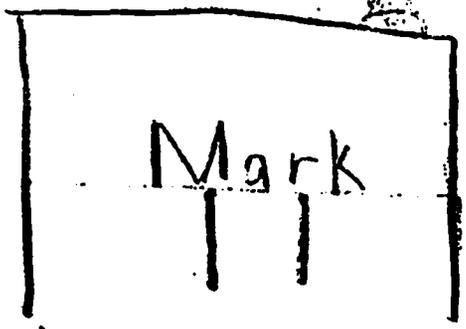
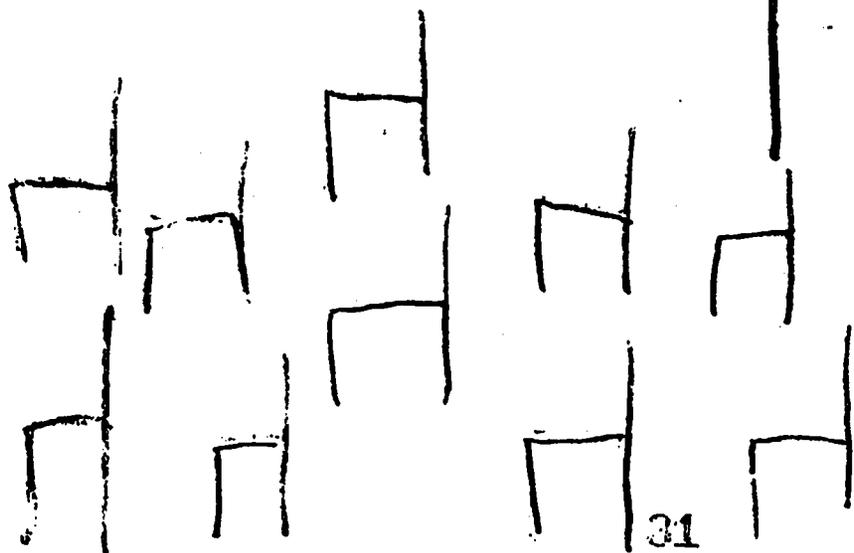
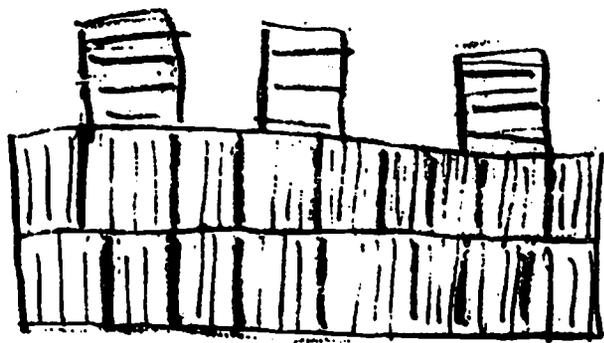
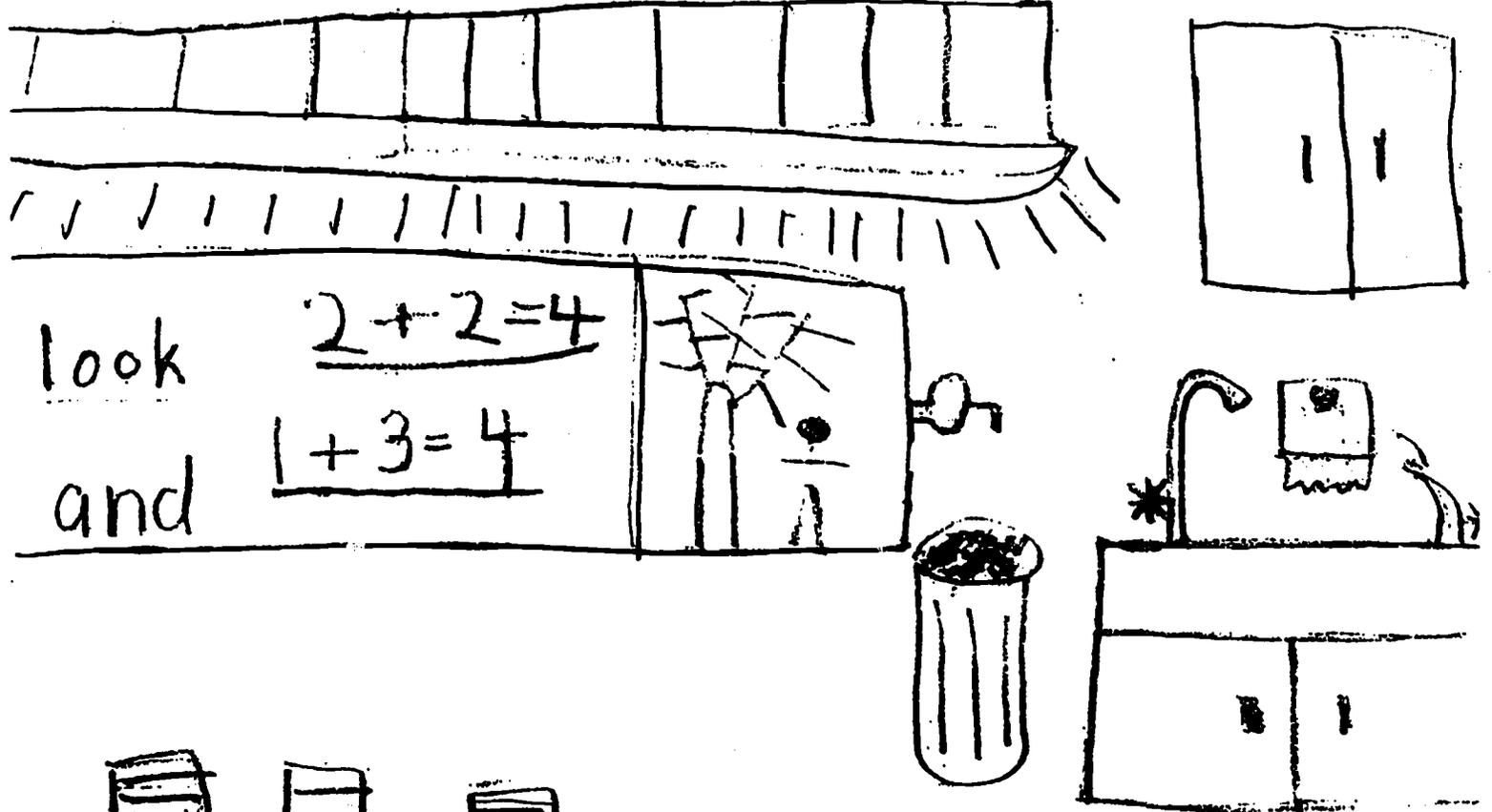
APPENDIXES

APPENDIX A
EXAMPLES OF CHILD'S DRAWINGS OF HIS SCHOOL

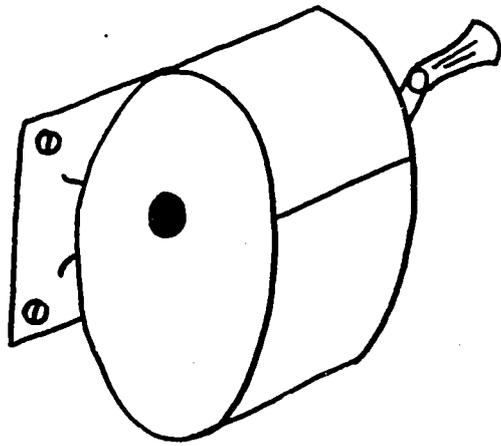
A SCENE IN THE INTERIOR OF A HOUSE



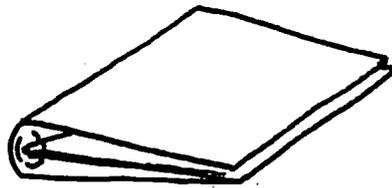
A PICTURE OF THE INSIDE OF MY SCHOOL



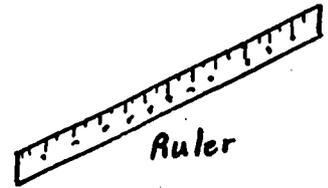
APPENDIX B
DUPLICATIONS OF STIMULUS FIGURES



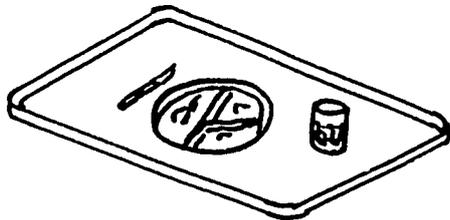
Pencil Sharpener



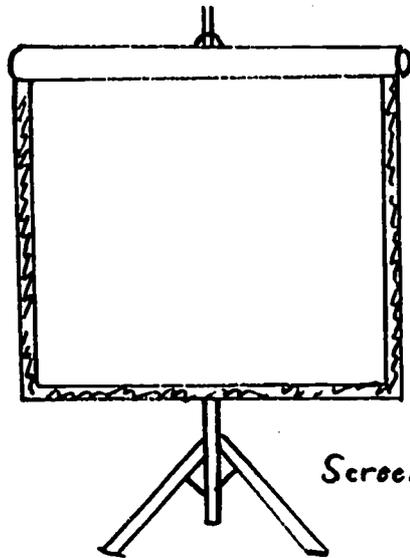
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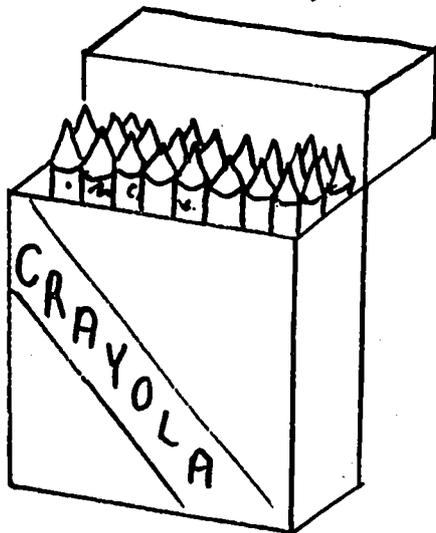
Ruler



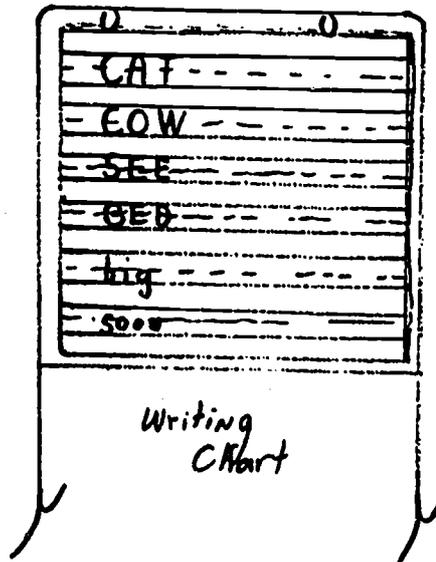
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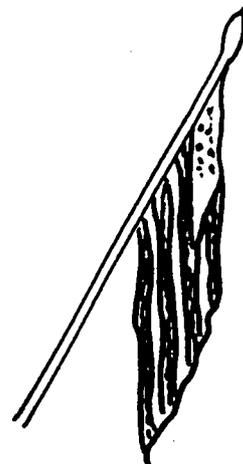
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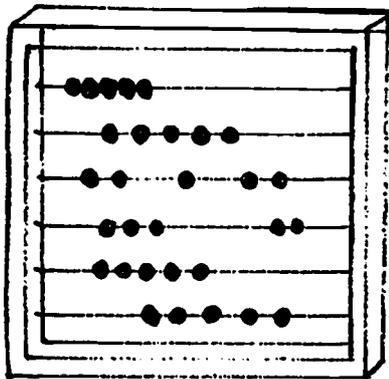
Crayons



Writing Chart



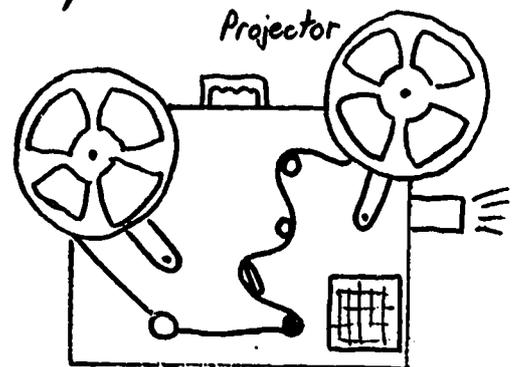
Amer. Flag



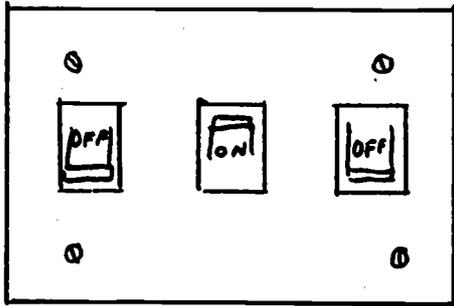
Abacus



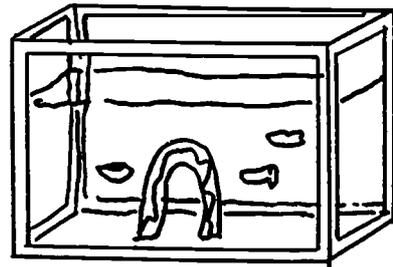
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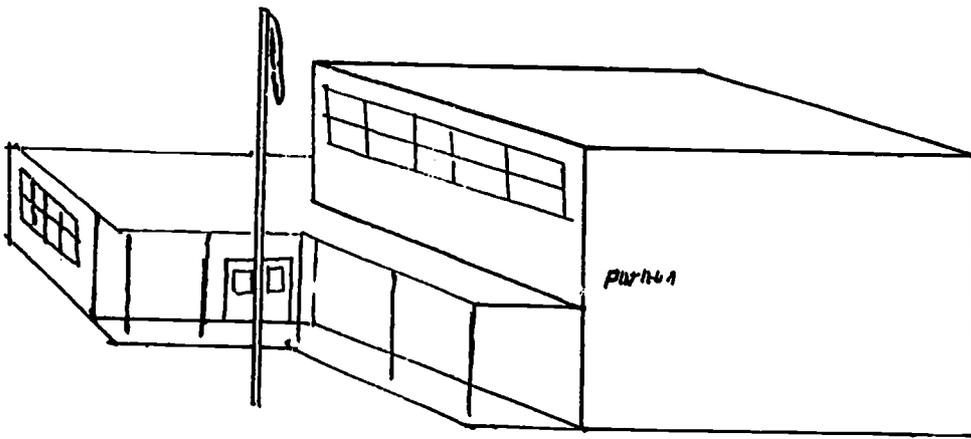
Projector



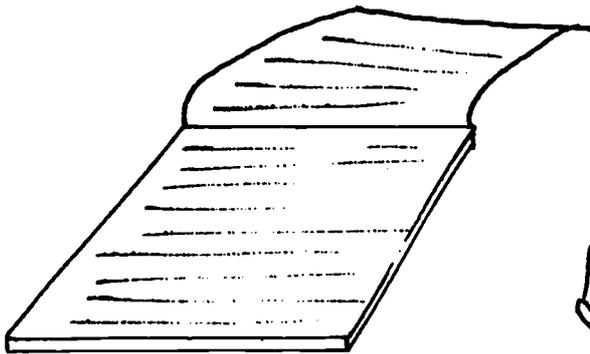
Light Switch



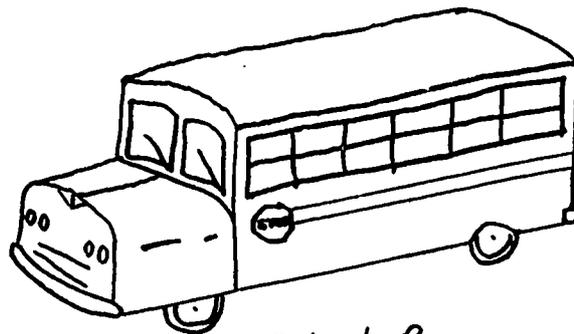
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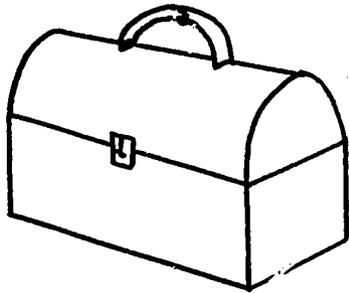
School Building



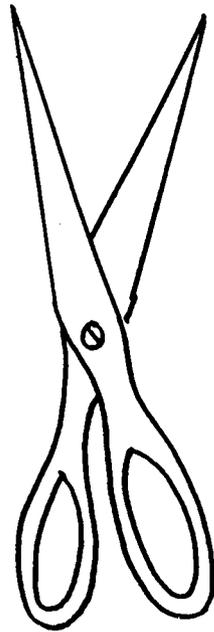
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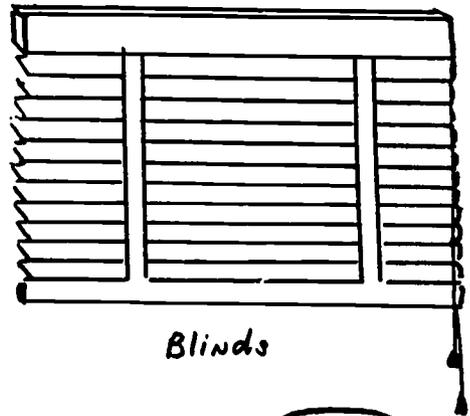
School Bus



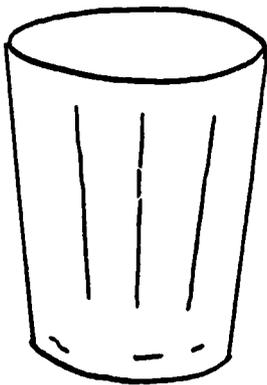
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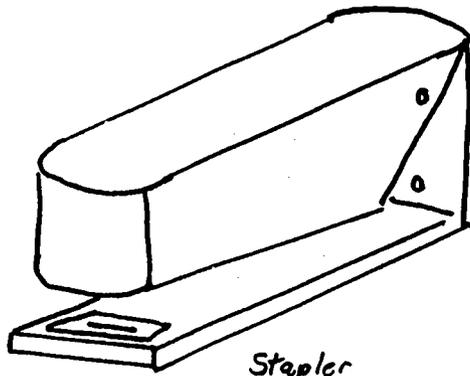
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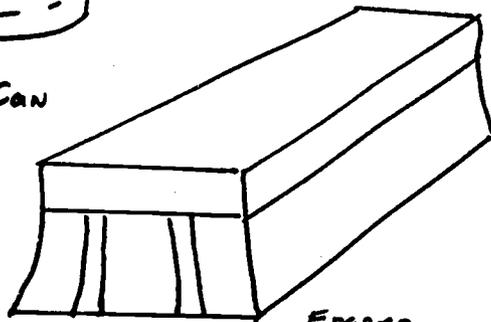
Blinds



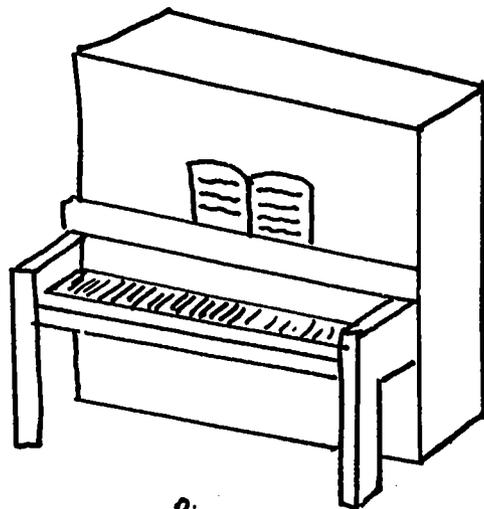
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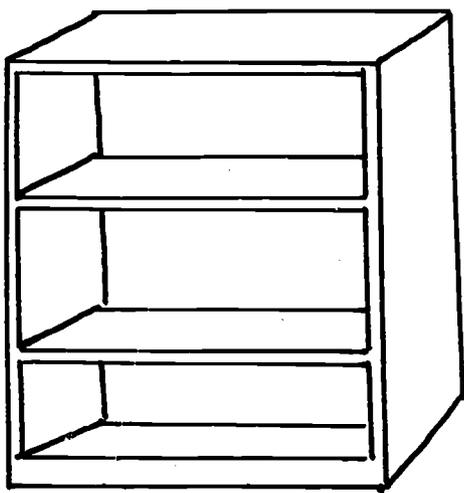
Stapler



Eraser



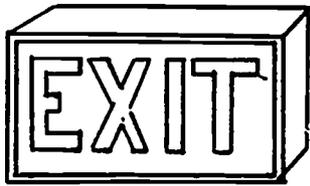
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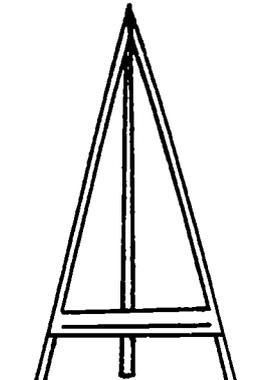
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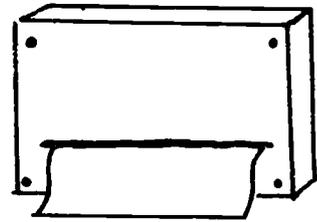
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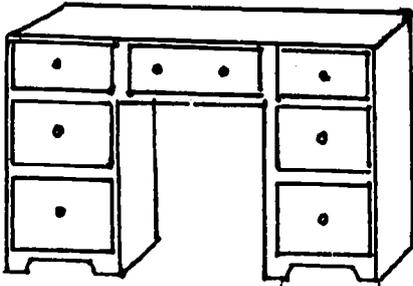
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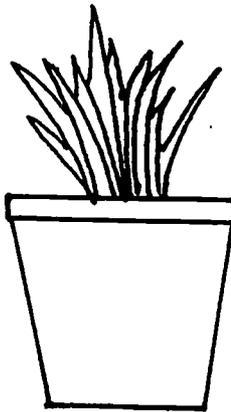
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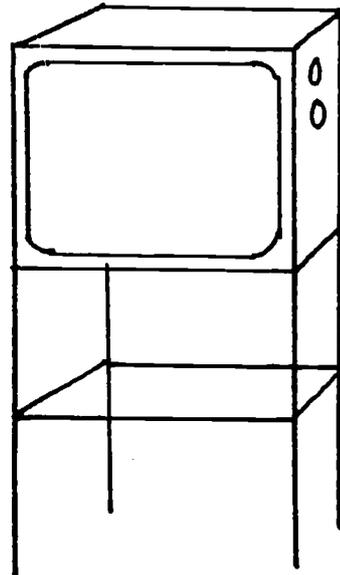
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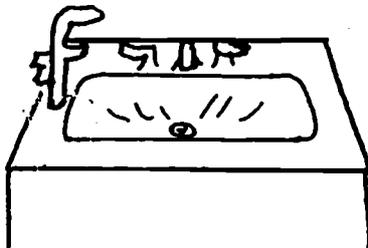
Teacher's Desk



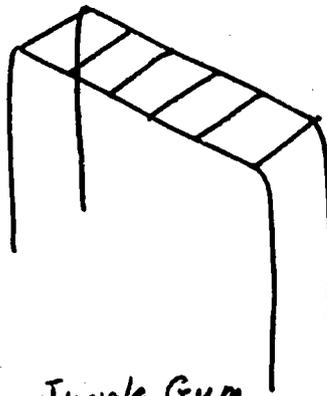
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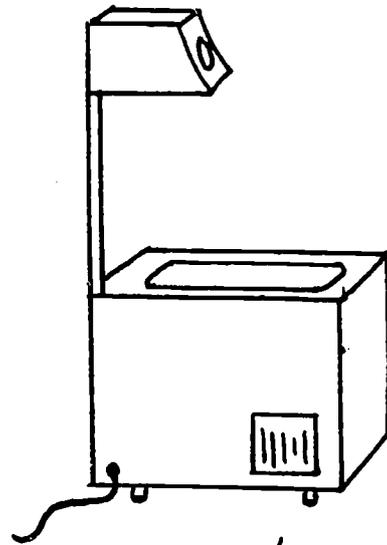
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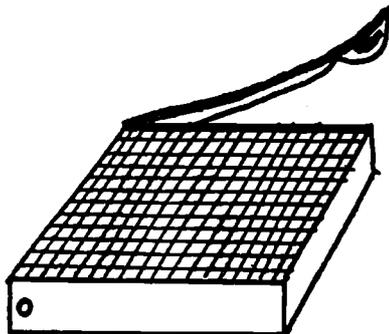
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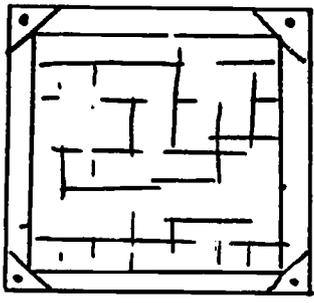
Jungle Gym



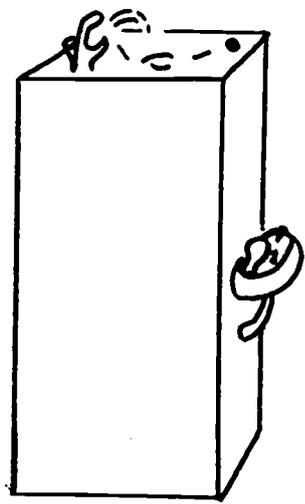
Overhead Projector



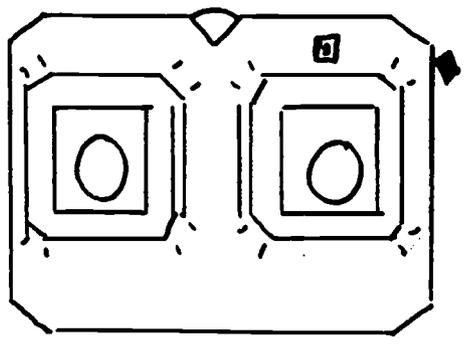
Paper Cutter



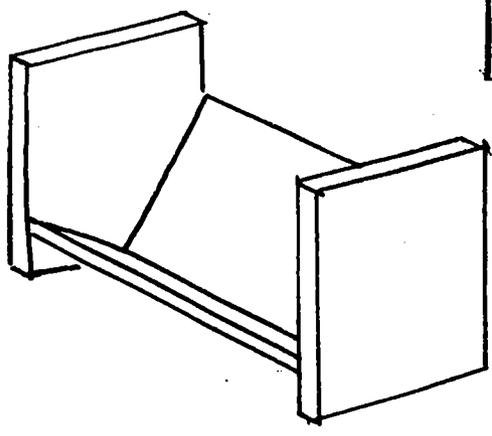
Loud Speaker



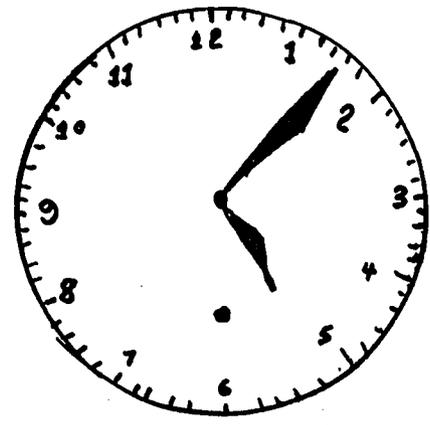
Water Fountain



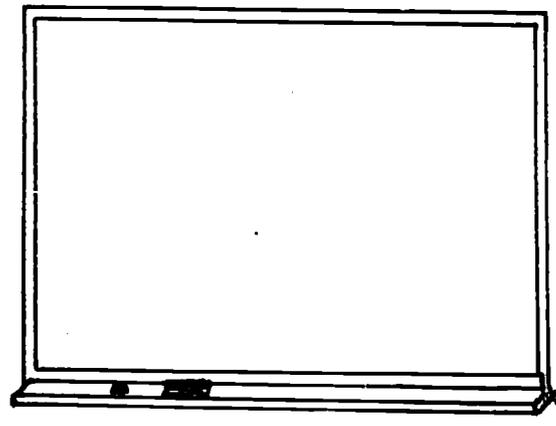
Viewmaster



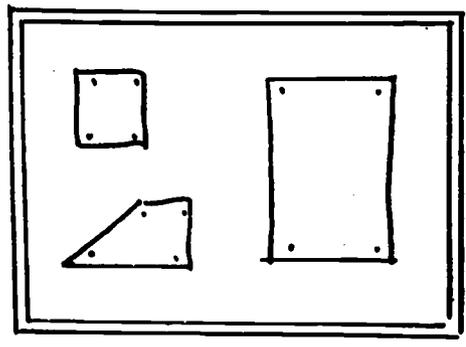
Book Rack



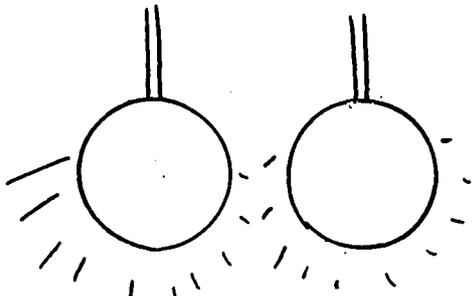
Clock



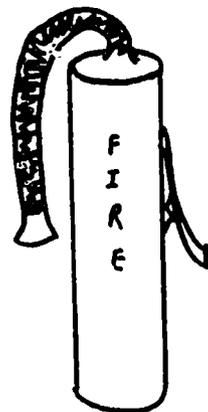
Chalkboard



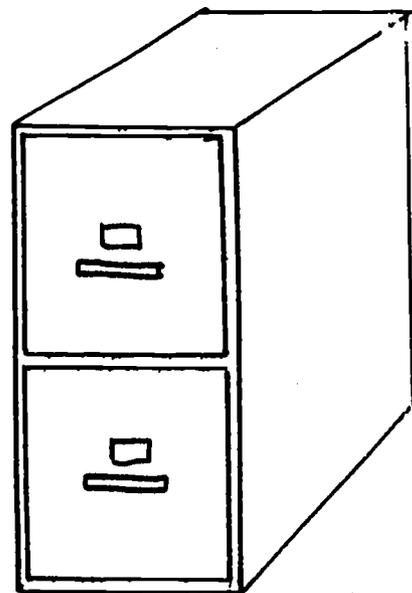
Bulletin Board



Globe Lights



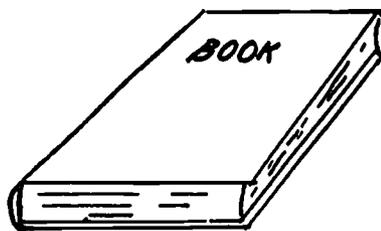
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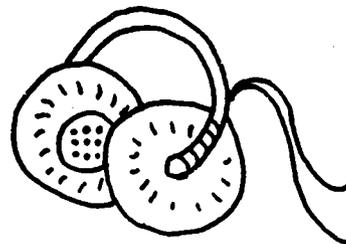
File Cabinet



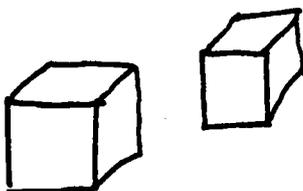
Book Satchel



Book



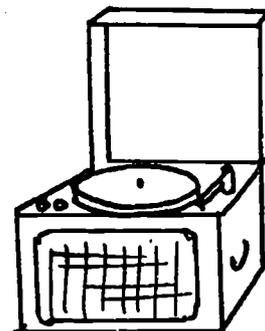
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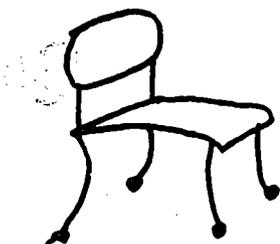
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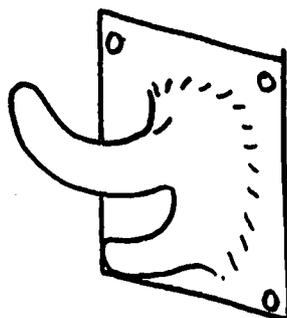
Slide



Record Player



Chair



Coat Hook



Lunch Table