FORMULATION OF A VISUAL STIMULI KIT DESIGNED AS AN AID TO DEVELOPING VISUAL AWARENESS FOR GRADE 3, 4 AND 5 SCHOOL CHILDREN BY THE ELEMENTARY CLASSROOM TEACHER

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ABSTRACT

Formulation of a Visual Stimuli Kit designed as an aid to developing Visual Awareness for Grade 3, 4, and 5 school children by the elementary classroom teacher.

In the elementary school, perception is important in many areas of the curriculum. Contemporary art education theorists have become more concerned with the development of children's visual perception as an integral part of the art program.

Although there are adequate books and periodicals for teachers about art education theory and method, there is a lack of useful, easily understood, simple to use visual aids.

This researcher's aim was to provide the means for teachers to develop perception with the help of visual aids. This kit was designed in such a way as to be easily used by the generalist classroom teacher without specialist training in art, or art education.

After reviewing literature in the general area of visual perception and when selecting images for the kit, the researcher believed that two considerations were of paramount importance: the relation of the image to the child's own environment; and the relation of the image to the interests of children. Consideration was given not only to the image but to the relationship between two views of the same object. The views of two independent evaluators were sought for clarification of and assessment of the potential kit.

The potential kit was composed of black and white, 11" x 14" prints made after taking photographs of environmental areas and articles

considered generally interesting to children and adults. An examination revealed that many prints were unsuitable for various reasons. The researcher also found that many needed modification because of insufficient content for detailed analysis. Additional enlarged photographs were made and included in each set. Questions were compiled and photographs were mounted in preparation for pilot testing.

Pilot testing was undertaken with a grade 4 and a grade 5 class from two public schools in Vancouver. Visuals were shown and questions were asked about each. Responses were recorded and analysed. It was concluded that the Visual Stimuli Kit would be suitable for further use with only one visual omitted. Previous testing had suggested reportable differences in overall thinking and perception between grade 4 and grade 5. Large differences were revealed in degree of perception and children's critical thinking. Further testing was carried out with grade 3, 4 and 5 children with responses tabulated and analysed. Grade 4 children with previous perceptual training showed differences in quality of responses. Results from classroom testing gave positive indications of the suitability of the Visual Stimuli Kit for classroom use.

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INTRODUCTION

Background to the Study

For some time art educators and others have been concerned with how man relates to his visual environment. Perception and the processes of perception have been a topic of concern, not only because of the process itself, but because of the effect that it has on children's development. In the field of art, perception plays a major part in the process of making art. Children's drawings are largely the result of their perceptions of an object or objects.

This researcher's interest is not in the perceptual or cognitive process of moving from the stimulus to the drawing, but in the type and the amount of input that the child gets from his surroundings. The author's personal observations indicate that many children are not aware of the objects that constitute their surroundings, and of the events that constitute their experience. This belief is supported by the literature in art education. There is a need to formulate some materials that will, to some degree, give the elementary school teacher concrete support in the development of visual awareness in the schools.

Over the last decade, several books have been written about how to teach for the development of visual awareness or environmental awareness to school children.[1, 2, 3] These books, although containing interesting and worthwhile material are generally designed as a text for future art teachers rather than as material to be used with children.

Van Nostrand Reinhold, NYT teaching Resources, and other similar organizations have developed Perceptual Enrichment or Sensory Awareness

Kits. While these can be used successfully, this researcher believes that they are not truly representative of the natural and man-made environment of the child.

Statement of Purpose and Significance

In this study, visual awareness is defined as the children's ability to discriminate visual features in their immediate environment. The purpose of this study is to identify visual stimuli teaching materials for use in developing visual awareness of the environment, and to produce these materials in a format useful to the classroom teacher.

This material will differ from other teaching aids in that it will be designed to develop children's interest and discrimination towards the environment. It will not develop just perception, nor will it be a series of interesting pictures or exercises in aesthetic sensitivity or taste, but rather a series of visuals designed to make children more conscious of and aware of their environment.

The materials are designed to be used at the grades three, four and five levels at the elementary school.

Young children perceive things differently from adults. According to Piaget, the processes from initial sight to drawing are:

> . . . perceptual images - the ones we have as we look at an object.
>
> . . . representational images - the ones we retain (as memory images) after our experience with the object has passed.
>
> . . . drawing - based on our representational images.[4]

If we can believe Lansing and Piaget, then that which children initially perceive has a direct bearing on the content in their drawings.

Kagan[5] suggests that the ability to reflect on alternative solution possibilities and to analyse visually are fundamental to cognitive processes and perceptual recognition.

McFee says that ". . . the tendency to analyse conceptually is related to the ability to analyse visually."[6]

Both these statements give weight to the fact that visual analysis is directly related to conceptual thinking. It naturally follows that breadth and depth of children's vision is fundamental to this process. Visual awareness determines visual analysis which in turn affects conceptual thinking. The development of visual awareness is of major importance in art education.

Review of the Literature

Visual Awareness, whether it be known as 'visual appreciation', 'aesthetic awareness' or some other name, continues to be extensively examined by educators, philosophers, and social and behavioural scientists. McFee quite categorically states:

> There is considerable evidence that learning is required in seeing, so one of the responsibilities of the teacher is helping children acquire more visual awareness and concepts with which to think about what they see.[7]

She continues:

> A second purpose is to help teachers to understand the grammar of vision, so that they may help children become more visually literate and sensitively aware, both to what is projected to them through the broad arts and to their own creations and contributions to society.[8]

Ronald Neperud is also concerned that this awareness should not be lost.

> . . . education of the sensitive individual is still the basis for any critical concern. For if one is incapable of rich multisensory experiencing - the hot breeze upon one's face, the

> odor of coal smoke, the glance of recognition, the hoot of an owl on a bitterly cold evening, if one does not attend to the subtleties of visual dimensions, their patterns and organizations, or if function means fulfilling only the so-called basic needs, a painting will remain a painting, a house a house, a flower a flower.[9]

His philosophy, although calling for the education of sensitive individuals, still expresses the need to be aware of our environment for this development.

This quotation from McFee's Preparation for Art embodies the views of a considerable body of educators who are concerned with the art education curriculum.

> Much of formal education has been focused on the recognition of objects to sort them into concepts, rather than analysis of their visual qualities. As a result many people grow up without learning to see beyond conceptual recognition. They classify an object according to their past experience. If an individual has had a rich visual experience, then his processes of recognition will bring many visual aspects into memory. If not his experience may be limited and stereotyped. He will miss much of the beauty around him, and be more likely to ignore the ugliness he and others may create.[10]

If this is the case, then it follows that suitable teaching materials be developed.

Considerations for Designing Visual Stimuli Materials

The aforementioned citations testify to the growing concern for more emphasis on learning skills that relate to the quality of life. It is necessary that as many contributing factors as possible be considered to allow for maximum learning of these skills.

Perceptual Readiness

McFee explains how a person responds to his environment.

> Several different kinds of behaviours are related to the way a person responds to his surroundings. A sorting process is basic

> to response--a sorting of the visual qualities of things by size, shape, colour, and texture. A second type of behaviour is the integration of the visual qualities with the cultural values one has learned. A third type of behaviour is the process of being consciously aware of what one is seeing. These behaviours are influenced by personality traits, cognitive habits, and attitudes.[11]

She says that when we deal with all this visual information, we classify it in three ways.

> 1. We classify similar things as units. We do not respond cognitively to all the leaves of a tree or to all the blades in a plot of grass. We deal with green trees and grass unless we purposefully look for small details and variations.
>
> 2. We classify the random by averages. When we drive in fast moving traffic, we do not have time to recognize cognitively each kind of car we pass even though our eyes may be receiving enough visual information for us to do so. We have to average out the visual qualities of all the cars in terms of their movements in relation to our own car. We select and use those averages of movement and direction that are necessary to us in the act of driving, and we constantly change our behaviour on the basis of these averages.
>
> 3. We classify according to wholes or completions. If we see part of a face we tend to envisage the rest of the face; we see part of a circle as belonging to the whole circle.[12]

It would seem then that unless we help children to classify and select details and variations, they are unlikely to do so of their own accord.

There are many theories of how learning takes place in the arts. Arnheim[13] feels that artistic production is not based upon intellectual abstraction but on broader cognition, and that the form that is represented cannot be derived only from the object perceived.

Lark-Horovitz believes that perception is a highly complex combination of the senses.

> In its widely inclusive meaning, perception involves observation and to a degree all the senses, and a highly complex sorting mechanism of great sensitivity. It is more than just seeing.

> It is an involved balance of the senses with certain discriminatory bridges to conscious thought and subconscious memory. A person experienced in observing and evaluating art perceives at a glance the kind of art he is viewing, the subject, the media, and the technique, composition and general period of the painting. He need not consciously think about each of these separately. But this automatic awareness of many aspects in the complex whole of a work of art does not just happen. It is the result of exposure, conscious learning and developed sensitivity.[14]

The most acceptable theory that explains how learning in art takes place, is McFee's Perception/Delineation theory. She identifies six points which she posits as being crucial to art learning. The first is the readiness of the child to respond cognitively, both perceptually and conceptually. The second is the psycho-cultural transaction of the child with his environment. Point three is the visual-physical environment introduced by the teacher. Information handling by the child is the fourth where the teacher helps him integrate new information into his established system and expand his habits of information handling. The fifth is the creative delineation of his response to his own work or the work of others. Finally there is the evaluation of feedback and the transfer of learning to the next task.[15] McFee's schema, as presented in Figure 1, makes the relationship of stages quite clear.

1. Readiness

1.1 Perceptual - Conceptual Development

1.2 Cognitive Style

1.3 Cultural Effects on Perceptual Learning

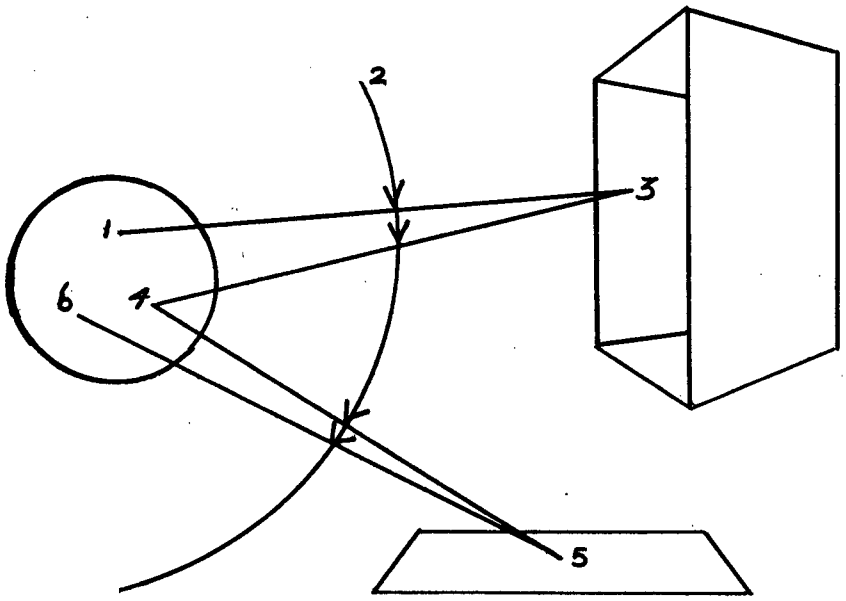
1.4 Prior Learnings

1.5 Art Values of Child's Subculture

1.6 Readiness for Creative Behaviour

1.7 Present Physical Condition

Figure 1.



McFee's Perception/Delineation Theory

Children's Interest

Relating the visuals to the direct interests of the children appeared to be a desirable way of stimulating the children's enthusiasm. This is supported by Lark-Horovitz who states that children's art interest is dependent ". . . on the dominating interests both of the age levels and the sex of the child. Children's choice of subjects for their own drawings and their expressed preferences of pictures by adult artists confirm this."[16]

Many views are expressed on the influence of gender and the interests of the child. Views differ somewhat on the children's interests but

all agree that there is an influence.

In his study Barnes (1902) found:

> . . . that buildings, pictures and other works of art are not strong centres around which to gather artistic feelings at any time in the elementary school period.[17]

Ballard (1912) concluded that boys and girls from the ages of three to fifteen:

> . . . like to draw living things. As they grow older, this interest in houses decreases. But plant life remains a great favourite with girls, even with increasing age, while ships are featured more prominently in the pictures of boys, especially those between the ages of seven and eleven.[18]

Lark-Horovitz quotes an investigation of the 1890's which dealt with the content of voluntary drawings by five to seventeen-year olds.

> It was found that humans, animals, and plants were the subjects most frequently selected for drawing up to age ten. Houses, the child's habitat and his intimate world, were also important subjects, although they ranked second to humans. In another investigation made in the early 1900's houses or houses in their gardens ranked highest as their chief subject, next comes animals and then people.[19]

Although these studies were undertaken around the turn of the century, there appears to be no agreement on children's interests. More recent investigations reflect a great change of emphasis, largely brought about by the change in lifestyle and the children's environment.

Among more recent investigations, Lark-Horovitz gives a different view of children's interests.

> Between the ages of nine and twelve, boys like to draw vehicles, especially ships, tanks, airplanes, rockets, flying saucers and space ships. Girls seldom draw vehicles, but often draw horses. From the age of nine on, the differences between the sexes in product and attitude becomes increasingly evident. Girls are more likely to choose still life as a subject than are boys. Boys are attracted by machines and start drawing them at an early age. Girls, if they draw machines at all, do so later.[20]

Further evidence useful in appreciating the importance of relating

subject matter to the child, has been advanced by Lowenfeld and Lambert Brittain who claim that:

> At this age (Preschematic stage 1-7 years) it is particularly important that any motivation be related directly to the child himself. This is an age that shows great pains in awareness. Developing a sensitivity to his own body parts should be one of the prime considerations for subject matter.[21]

As a result of this review, it seems reasonable to assume that educationally useful visual stimuli material for didactic purposes which is to be produced should include humans, animals, living things and plant life in addition to technological items from the local environment.

Colour

One important element in children's perceptual development is colour. To date, its importance has not been examined in depth. The relationship colour has to children's perception and responses has been observed. Several theories are examinable.

> Evidence suggests that colour plays an important part in the attitude and responses of children. Children, eleven to thirteen year olds, make colour and degree of naturalism the criteria of judging.[22]

Lark-Horovitz, in making this statement, is influenced by Todd's[23] study which had been designed to ascertain the degree of children's interest in works of art. Her views are relevant as there is a similarity in perceiving the natural environment or photographs of the environment to that of looking at works of art.

The elaboration of a Visual Stimuli Kit to include colour has obvious merit. However, as it was the investigator's intention to produce an introductory series, the decision was made to omit the colour factor. It is anticipated that a series of slides on colour will be a further and

separate area of concern. This development may be complex. MacGregor[24] believes that in perceiving colour, a person is particularly prone to "fill in" information.

This writer's previous experience with perception in elementary school children leads him to believe that some children think that they see colour in black and white photographs. If this is so, then perception of colour is a major area of concern deserving extensive investigation.

Cultural Influences

Environment, as modified by subcultural experience, appears to have more influence than race. "It appears that there are genuine perceptual differences that are determined by environmental factors rather than by racial factors."[25]

In this investigation, the researcher makes the assumption that this is so. It would follow then that in designing the visuals, consideration should be given to images which are not culturally biased (if such images are possible).

The Transference of a Three Dimensional Image to Two Dimensions

The relationship between the image as seen in real life and the recorded image should be questioned.

Several studies have been undertaken on the difficulties that one has when looking at a photograph or a picture (two dimensions) of a three dimensional subject. Segall, Campbell and Herskovits have this to say:

> . . . it is hard for us as Westerners to realize that the tradition of representing three dimensions in two has the character of an arbitrary linguistic convention. Hudson (1960)[26] has shown that one who is not familiar with this communicative intent does not find this 'language' at all obvious. In many respects, it is a language that has to be learned, like any other.[27]

In light of those opinions about language or linguistic conventions, this researcher is making the assumption that all children with whom these materials are going to be used will be familiar with this "language."

Choice of Images for the Visual Stimuli Kit

Guilford's views on learning give weight to the fact that it is not imperative to have subjects that the children have actually seen.

> Children can also learn to extricate familiar objects from inferring irrelevant material. This has been demonstrated by Elkind, Koegler, and Go[28] in a study with hidden figures. With children of ages six, seven, and eight, they applied such procedures as telling the child what kind of object to look for and covering all the picture except the hidden object. Using 24 different pictures, they determined each child's score for seeing the hidden figures before training, after training and again a month later. In every age group there was substantial gain with mean scores becoming approximately doubled.[29]

Perception of hidden figures has also been used by MacGregor[30] in his Perceptual Index. Here the children were asked to see hidden figures in photographs of the environment.

It therefore appears important to include objects and environments that the children can relate to but not necessarily that have seen before.

Summary

In the elementary school, perception plays a major role in many areas of the curriculum. Contemporary art education theory has become more concerned with developing children's visual perception as an integral part of the art program.

Although there are adequate books and periodicals for teachers about art education theory and method, there is a lack of useful, easily

understood, simple to use audio visual aids.

This researcher's aim has been to provide the means for teachers to develop perception by means of visual aids. This kit has been designed in such a way as to be easily used by the generalist classroom teacher without specialist training in art or art education.

Chapter 2

FORMULATION AND MODIFICATION OF THE KIT

Initial Selection of Images for the Visual Stimuli Kit

As a result of reviewing the literature in Chapter 1 the two factors that seem to deserve initial consideration are (a) images which relate to the child's environment, and (b) those which cater to the interest of the child. This includes interest of both boys and girls. Therefore it appears imperative that subjects should be sought from areas with which all children come into contact. However, it also seems important that the children should be confronted with material which they have not seen but which allows for the more perceptive child to extend himself. It follows that the above should naturally fall into two distinct areas: (a) subjects which all children should have come into contact with (food, clothing, playthings, toys, etc.) and (b) subjects from further afield (houses, boats, airplanes, textures, etc.).

It was expected that the main emphasis should be to assist the children to look at all the features in the photograph before final interpretation. The details in the photographs were chosen to give visual clues as to the true identity of the subject.

In order to develop perceptual skills it was decided in several cases to include two different views of the same subject. The first image would include a close-up view. The following visual would show a more distant one. By using this technique, it was expected that the children would be more sensitive toward searching for the discriminatory characteristics in each image. They should be able to see an immediate relationship between the separate textures, lines, shapes and the whole.

Set 1 included various types of food, parts of bicycles, views of stores, etc. It was considered that children would be familiar with these objects and could identify the distant views quite readily. More difficulty would be experienced with the close-up pictures. In these cases the children would be required to look carefully at the characteristics shown in each photograph, and then to relate this data to their previous experiences. The researcher posited that when viewing the distant photographs, the children would more often rely on a 'hunch' or on the results of a quick cursory glance. Here there would be a need for very careful questioning that would lead to a more detailed analysis of each visual.

Set 2 included mostly distant views. Because it was intended to be an extension of skills developed in Set 1, each visual included more complex subject matter. Children were to be encouraged to look at the salient features of each visual before making a final decision on its subject matter. Subject matter varied from natural forms and rocks, to ships, airplanes, houses and comparative environments.

Although one might expect that airplanes and boats may often be unfamiliar sights to some children, it was anticipated that the children's interest in such areas would overcome any limitations from the infrequent exposures. In fact testing showed this was indeed so. Many children had visited the beach area very few times and even less had first hand knowledge of helicopters, but because of their interest and perhaps the influence of television, most were able to quickly identify the helicopter rotor.

Before testing, both Sets were shown to two independent evaluators. Two university professors specializing in art education for young

children at the universities of Victoria and Manitoba respectively were selected. The following are extracts of interviews and comments by both persons. Suggestions were considered and in some cases, changes were made. Both art educators felt that the kit could be successfully used to develop perception in children in grades 3 through 5.

The question arose as to whether the visuals favoured boys rather than girls. Each visual was examined independently from this point of view. In light of contemporary children's interests, it was decided that the visuals favoured neither gender. Each visual was considered to be equally familiar to boys and girls. The question of "levels" of perception arose. The investigator, in his search of the literature on art education, had found no mention of "levels" or "grades" of perception. It was concluded that it was infeasible to attempt such a classification. The responses expected from each individual should be left entirely up to the teacher leading each discussion group. Quality and quantity of responses were expected to relate to each individual child. This relates to McFee's[31] six critical points to learning. Children in Grade 3 are considered to be ready to respond perceptually and conceptually. One would naturally expect that the responses will directly reflect the visual, physical environment introduced by the teacher and parents. All children should be able to relate to all visuals.

Possible difficulties associated with visual no. 14 in Set 1 were discussed (Safeway pushcart). The problem of what children would look for, identification of unfamiliar elements, i.e., lights, reflections, etc., and anticipated responses. These elements were thought to be identifiable at each relevant age level. This subject was considered equally viable for all children.

The choice of subjects for each set was questioned. On what basis was each chosen? All visuals were chosen primarily for their relationship to the environment of children in the Vancouver area. Other important factors were: interest to children in grades 4 and 5, relation to the children's vocabulary, and the interest of the visual content. Set 1 was considered as an introductory or "lead in" to visual discrimination, with the children concerning themselves with elements of content which they have to sift in order to arrive at the final solution. Children are encouraged to look for the salient features of the photographs rather than to guess what each represents.

Set 2 was designed to follow on from Set 1 in the same vein but with more complex photographs. The visuals are of an environment which is further afield than those on Set 1. An assumption was made that children will not have directly seen each subject. Set 2 visuals were also designed for a more comparative study of content, e.g., two slides of a street corner. It was expected that children will have to use past experience coupled with present cues in "deciphering" these visuals. Several have embedded figures or shapes designed for more heightened or sophisticated perception.

Does each set provide for children who have predominate interests in masculine (machines, war games) or feminine (dolls' costumes, colour) themes? While the investigator realizes that this is an area of concern that needs investigation, because of the complexity, it was decided to limit the subjects to areas which have a presumed dual interest. To what range or area do the visuals apply? Whilst being designed specifically for students in the Vancouver area, the researcher holds the view that

they could be used successfully in many areas of Canada, the USA, Australia and other Western countries.

Overall, the visuals were considered by the two experts to be related to the interests of the proposed population and it was expected that the material would be useful for developing perceptual skills quite well. The possibility of marketing each set with related information was discussed. Such a venture would necessitate either of three types of information: (1) Suggested questions related to each visual; (2) key words related to each visual; (3) a synopsis of each visual which would give an overall resumé of that which the investigator considered important and relative to each set. No. 1 was considered the most helpful to the classroom teacher and was consequently adopted for trial.

Formulation and Modification of the Kit

Using the general interest areas mentioned in the above section as a guide, specific images were sought. Seventy black and white photographs were taken of features from the environment in and around Vancouver. These ranged from fences, garbage dumps, and chairs to onions, carrots and lemons, to seaplanes, helicopters, and buildings being demolished.

Films were processed and the plates printed. At this stage consideration was given to which images would be more suitable for the close-up views. The most appropriate images were blown up to suitable sizes (14" x 11") and printed. All prints were then examined and a selection was made. Careful sifting and classifying realized two sets of visuals with twenty-one photographs in each.

Visuals were discarded for the following reasons: the farmyard,

horses, apartment house, logs on the river, chickens, garbage dump and street violinist were discarded because they were applicable to too narrow a range of the population.

The gingerbread house, Christmas cake, moving truck, and front cover of a child's book were discarded because they unduly favoured boys or girls.

Several views of houses, streets and buildings were discarded because of lack of interest within the photograph.

It was thought that the holly, the Christmas cake, the signwriter and the interior of the bus had limited use in the development of perception because of confusion within the visual itself.

Several others were discarded because there were a sufficient number of views of that particular subject.

The fishing boats remained although it was considered that this would apply to a limited section of the population. It was thought that this was necessary for a direct comparison with the sailboats.

Arranging the visuals in correct sequence seemed critical as it was considered that this could more readily develop perceptual skills.

In Set 1 it seemed appropriate to start with prints of the child's rubber ball and the fruit. An assumption was made that these images would be familiar to children and, as such, would be readily identified. Other images were arranged in sequence with those expected to be quickly identified first, leading to the more complex images. A quick investigation with three children within the grade 3 to grade 5 range revealed that there was not a sufficient degree of complexity. For example, children were able to identify each without an indepth analysis. Close-up views of the first four images were then printed. The visuals were then rearranged

with these additional images included foremost in the first set of prints. All prints were then shown to the previously mentioned three children. Now, in order to identify each, the children would have to look for the textures, lines, overlapping, etc., and then make a reasoned judgement based on their perception. The blurred images in the close-up views were expected to generate more involvement from children. In this subsequent viewing these children immediately realized that they could not make an immediate classification but would have to search for more information. The responses from the children suggested that these types of images could generate enthusiastic discussion.

To follow on in sequence, it seemed natural at this point to include images of a water faucet and shopping basket. They were followed by blurred images of bicycles and bricks and a side view of a shoe. In an attempt to avoid monotony and also to relate one's initial mode of perception to typical scenes, the interior view of a Safeway store was inserted. This procedure and sequence was successful when tried with the initial three children.

In Set 2 the view of the cedar panelling, and the view of the bricks were shown first, followed by rocks at the seashore. This appeared to follow naturally from Set 1. The three boat scenes were grouped together. Then to ensure that the girls could be adequately catered for, the three views of the houses were placed next. The series on airplanes was grouped next to allow for a comparative study which was expected to be more complex than the comparison of houses. The final series on street scenes and building related directly to the environment with which the children would be most familiar. In these photographs, there are more

subtle differences than in many of the previous photographs.

The photographs were mounted on suitable card which would facilitate ease of handling and storage. Two boxes were constructed, one for each set.

Using the initial testing operations with the three children as a procedural model, a preparatory series of questions were compiled for use as a basis for the final questions which were to accompany each visual. These were modified constantly throughout the pilot testing until a final list was compiled.

Summary

In selecting images for the kit, the researcher believed that two considerations were of paramount importance: the relation of the image to the child's own environment; and the relation of the image to interests of the children. Consideration was given not only to the image but also to the relationship between two views of the same object. The views of two independent evaluators were sought for clarification of and assessment of the potential kit.

Using the general interest areas as a basis, photographs were taken of specific subjects within each area. These were printed on 14" x 11" black and white photographic paper.

An examination revealed that many were unsuitable for various reasons. The researcher also found that many visuals needed modification because of insufficient content for detailed analysis. Additional enlarged photographs were made and included in each set. Questions were compiled and photographs were mounted in preparation for pilot testing.

Chapter 3

INITIAL TESTING OF THE KIT

Pilot Testing for Responses

To test the kit it was decided to seek out two schools in the Greater Vancouver area. Permission was sought from the appropriate authorities and it was decided to test the Grade 4 children at school 'A' and the Grade 5 children at school 'B' in the same lower mainland school district. Both schools are considered to be in the middle to lower socio-economic status and children come from a variety of cultures and backgrounds. It was judged that if suitable responses could be obtained from children with such diverse backgrounds then the Visual Stimuli kit should enable equally suitable responses from children from higher SES areas and less diverse backgrounds.

Testing in School 'A'

One group of 10 children was randomly selected from Grade 4. The group consisted of five girls and five boys. Testing was carried out in a discussion room consisting of one table and ten chairs. Two separate sessions were given with the group, each taking approximately thirty minutes.

In each session, the visuals were shown by the researcher to the children in sequence. Questions as outlined in Appendix 1 or similar questions, depending on the situation, were asked. Each child was encouraged to respond for as long as he wished on each image shown. The time spent on each image varied, depending upon the time that children wished to spend looking and responding. In some instances the investigator felt

it necessary to curtail the verbalization and move to the next visual. The reason was generally because of children becoming sidetracked, talking about obscurely related or unrelated subjects. Where there were differing opinions, the children were encouraged to discuss the variations among the group. All sessions were carefully controlled to provide each child with the maximum opportunity to give his opinion. Sessions were taped.

There appeared to be an equal amount of enthusiastic discussion from both boys and girls on all visuals. Lack of vocabulary appeared to prevent the children from expressing themselves immediately with clarity. Even so they were able to satisfactorily express themselves. The researcher saw that there was a distinct difference in what the children were looking for from the first visual to the final six. Children initially attempted to guess at the content of each photograph. With guidance, the children gradually looked for the key elements which aided in identification. The number of responses obtained for the final six photographs in Set 1 greatly exceeded those expected, especially in light of those given earlier in that session. In the second session with Set 2, there was a definite increase in the quality and quantity of the responses. Girls were equally enthusiastic about ships and boats, a characteristically male interest.

Testing in School 'B'

The group in this school was similar to that of school 'A'. Ten children were randomly selected from Grade 5. Five boys and five girls constituted this group. Discussion was carried out in a similar manner. One difference was that the sessions immediately followed one another. The sessions were again directed by the researcher and every effort was

made to ask similar questions to those previously asked. Again each child was allowed sufficient time to make his or her response.

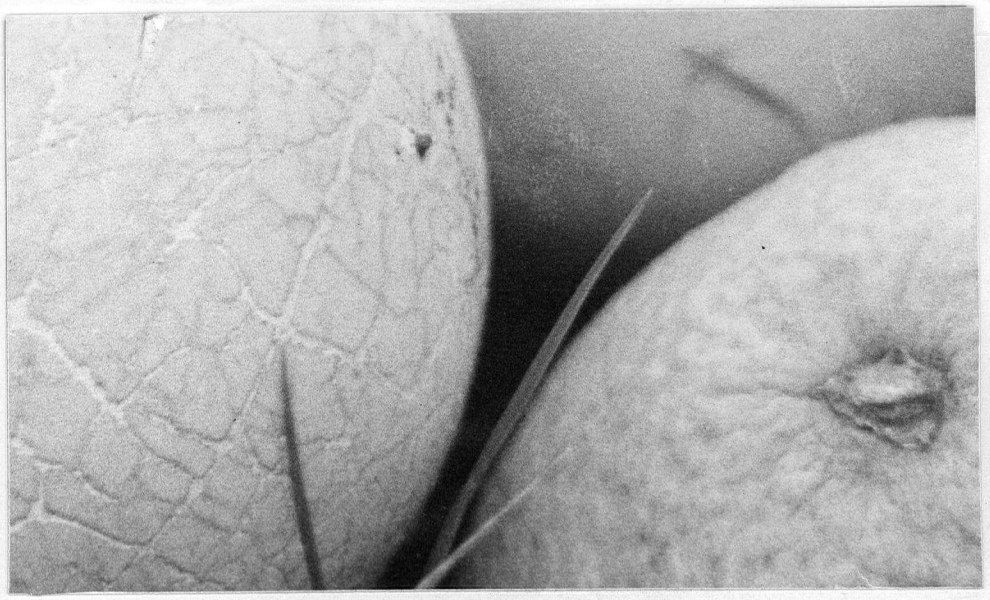
The results of the pilot testing revealed marked differences in response, children's perception, and children's overall thinking. The vocabulary used is considered particularly relevant. Not only did it show the way in which the children were thinking, but also it showed increase in perception and the type of vocabulary that children use to communicate their perceptions.

Relevant extracts from the children's dialogue reveal elements of their depth of perception and their critical thinking. Children were encouraged to think aloud while they were responding to the photographs. All responses represent group answers. It should be assumed that all children contributed to the total response.

The following responses testify to the various responses from image to image and between grade levels.

The Visuals, the Questions and the Answers

Set 1. These are related to the child's most immediate environment.



1. Portion of an orange, portion of a child's ball, grass.

Questions: What might this be? What do we have here? What shape can you see? Can you see any cracks? Can you see any texture? What could the long things be? How could you describe the long things? Do you think one is a golf ball? Why or why not?

Responses: School 'A', Grade 4. rocks, rounded shape, orange, round, watermelon, grass, sticks, straight, circle, globe, golf ball, gumball, octopus, map of the world.

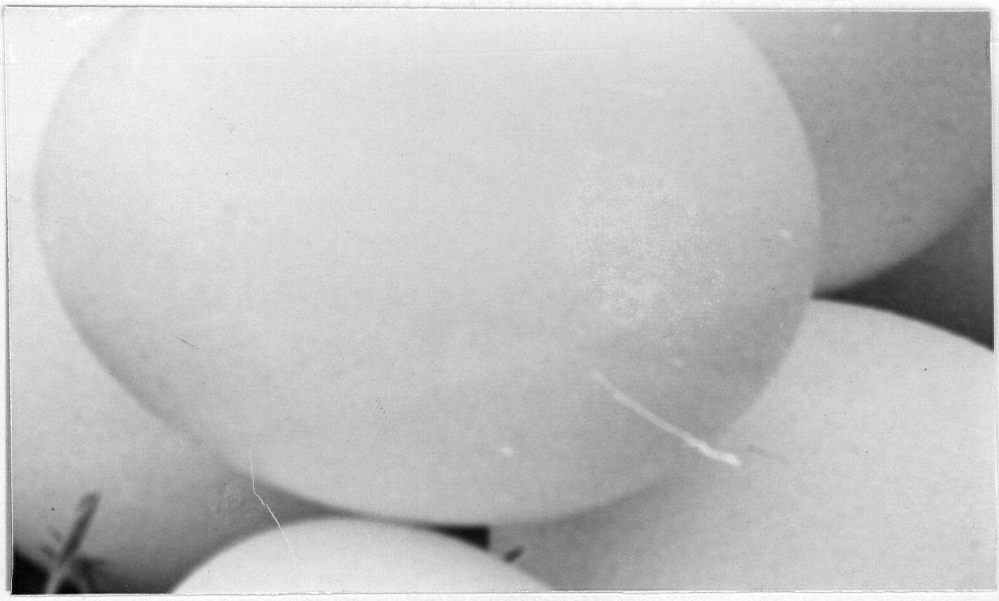
Responses: School 'B', Grade 5. that's an orange, could be an egg, round shape, not exactly round, could be grass, has the same shape as grass.

2. Orange and two toy balls.

Questions: What might this be? What can we say about the shape of each? Why would there be a line around the shape at the rear?

Responses: School 'A', Grade 4. egg, orange, ball.

Responses: School 'B', Grade 5. orange, because of the lumps and holes, egg, no golf ball, there is a line, it couldn't be an egg if it had a line on, a ball sitting on grass, rough, spongy because of the cracks, little spots, looks like a rubber ball, an orange, a lemon doesn't have those spots, and it is sort of oval shape.



3. Close-up view of eggs.

Questions: What might these be? What shape would they be? What could they be sitting on? Are the shapes oval like a football or football field? Can you think of a name that means 'in front of'?

Responses: School 'A', Grade 4. eggs, pointy at the end, oval shape, first.

Responses: School 'B', Grade 5. eggs, because of the shape, they are kind of oval, they are white, it is sitting on grass, that one's on top, it's covering them, overlapping.

4. Seven eggs on grass.

Questions: What do you think these are? How can you tell they are eggs? Which egg is the closest to the camera? How can you tell? Is there an egg that does not have overlapping? Which one? How many eggs are there? Could there be more? Why or why not?

Responses: School 'A', Grade 4. on the top, shows the most, point by the side.

Responses: School 'B', Grade 5. this egg is on the top, there are seven eggs, you can't see an extra egg.

5. Portion of a lemon.

Questions: What might this be? What makes you think that it is a lemon/orange? Could it be anything else?

Responses: School 'A', Grade 4. dots, orange, things with seeds inside, brownish, lemon.

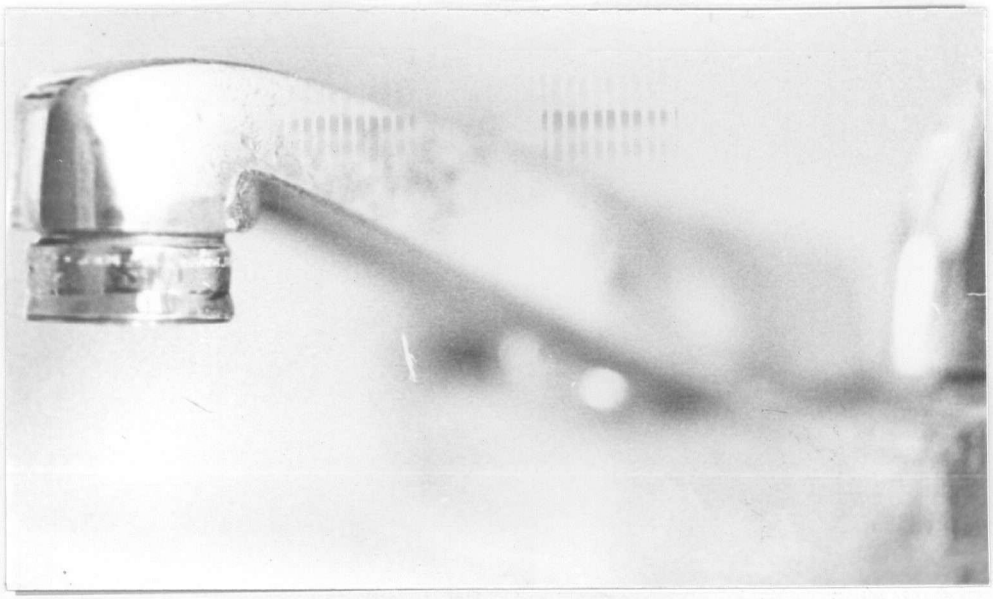
Responses: School 'B', Grade 5. looks like a lemon, an orange, a soft-ball, no, it looks too big, a golf ball, no a golf ball has deeper holes, this one is too big here, could be a close-up view, this one is in the water because it is blurry, could be frogs' eggs, frogs' eggs in the water, frogs' eggs underwater.

6. A group of lemons on grass.

Questions: What do you think these could be? How can you tell they are lemons? What else is in the picture? How could we describe the surface of the lemons? Is photograph 5 part of this photograph? What section is the same? Are they all lemons? Why is one lemon blurry?

Responses: School 'A', Grade 4. two things on the end, dots, polka dots.

Responses: School 'B', Grade 5. lemons, not all lemons, yes, all lemons, because of the things on the end, that one is blurry because it was at the back.



7. A tap or water faucet.

Questions: What could this be? What can you see that gives you clues? What else is in the picture? What word can we use that tells us that it looks like water?

Responses: School 'A', Grade 4. part of a sink, tap, water faucet, looks like steel, has a thing on the end, moisture.

Responses: School 'B', Grade 5. water faucet, that thing, round and water comes out of it, you can see where it comes out, it looks like the number seven with the top cut off, these look like water spots, that looks like the stem part and the hot water tap, moisture, this looks shiny.

8. Portion of an onion.

Questions: What might this be? Why do you think it is an onion? What could the white things be? How could you describe the outside surface? What word could we use to describe it? Could it be a rat? Why or why not?

Responses: School 'A', Grade 4. onion, bulb that goes in the ground, roots, like a leaf, paper that onions have, protection, trees have bark, skin.

Responses: School 'B', Grade 5. an onion, because there is roots, couldn't be a rat, a rat wouldn't have skin peeling off, a rat has hair and this has roots, there are new roots and old roots, you can peel these off, the skin comes off in layers, there is a lump, no a hole, it could be a rotten onion.

9. Onions.

Questions: What are these? How can you tell that they are onions? Could they be anything else but onions? Is the large one an old onion or a young one?

Responses: School 'A', Grade 4. onion, took the skin off.

Responses: School 'B', Grade 5. onion, garlic bulb, tulip bulb, onions peel more, this is an onion because when you cut it the layers stick up, it is an old onion because it peels more and it is sort of shrivelled, it has bruises on, it is rotten, it has brown stuff around and it's older, the skin is more brittle and cracking.

10. Portion of a banana and apples.

Questions: What might this be? Can you see any prickles or hairs? What other elements or shapes can you see? What can you see in the background? Is it natural (something grown) or is it something somebody has made? What parts might give you a clue as to what it is?

Responses: School 'A', Grade 4. a pumpkin, a mushroom, a watermelon, white dots, little prickles, a caterpillar, worm, like an apple.

Responses: School 'B', Grade 5. like a mushroom, a banana, a banana that large? fungus, looks like a giraffe, piece of wood, a frog, little mushroom, a beetle bug, worm, sky and stars, this line could be part of an apple, this shape looks like a worm or a fish or a tadpole, hair, like a mouse, stars or spots.

11. Bananas and apples.

Questions: Can you identify what is in this picture? Can you tell whether the apples are 1st grade or 2nd grade? Do bananas always have spots?

Responses: School 'A', Grade 4. apples, worm, black dots.

Responses: School 'B', Grade 5. bananas, was a worm, a bunch of bananas, 2nd grade apples because of the spots, the apples have spots because they are old, somebody spilt something on them, 2nd grade because they are not shiny, the bananas look old because they have black on top, they all have that.

12. Portion of a carrot.

Questions: What might this be? What is it that gives you clues about its identity?

Responses: School 'A', Grade 4. carrot, shaped like a carrot, on the top it gets thick and the bottom it gets skinnier, it gets lines that get big and then smaller and smaller, carrot when you are about to peel it, lines.

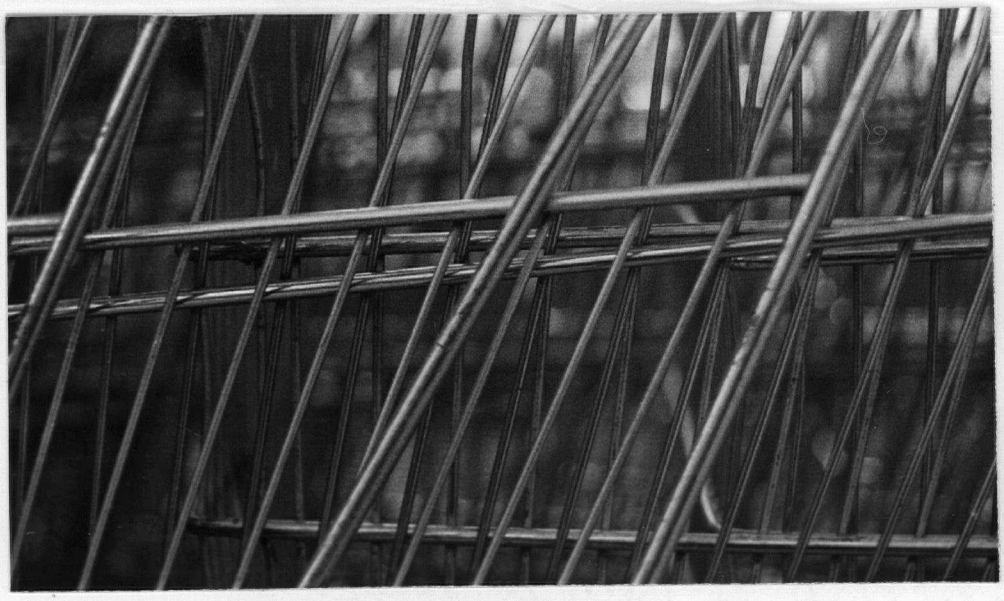
Responses: School 'B', Grade 5. carrot, because a carrot has stripes on it, it is shaped like a carrot, the top is here and the bottom skinnier, it looks like a long sided triangle.

13. Four carrots.

Questions: What might these be? How many carrots can you see? Can you see any lines on the carrots? Where are they?

Responses: School 'A', Grade 4. four carrots, not five, skin.

Responses: School 'B', Grade 5. there are four carrots, there are the roots to get in the water.



14. Side view of a Safeway shopping basket.

Questions: What could this be? Would it be wood or metal? What is in the background? Does the background help you identify it?

Responses: School 'A', Grade 4. a cage, a steel cage, a pushcart, a Safeway pushcart, big ones and two thick ones, sticks, fence, looks like water, and the channel, reflections, bridge, a cage with a stick behind it, fence.

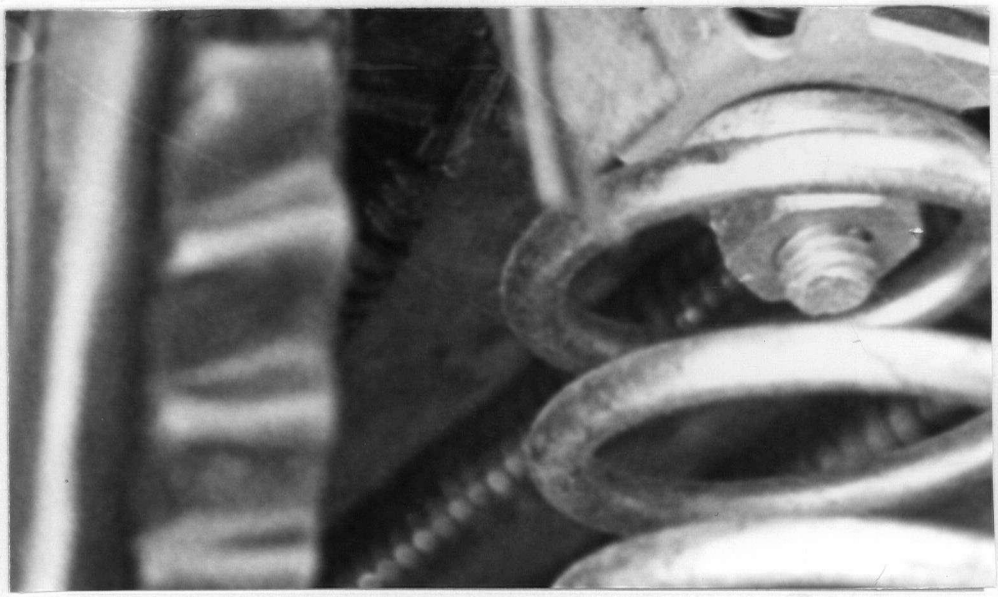
Responses: School 'B', Grade 5. cage, basket, start of a woven basket, a hut, it's steel and shiny, looks like little bars, could be wooden bars, it is wood, no, it's steel, when it is wood it is more likely to be crooked, this part looks like a shopping cart, because of the shape of it, these things here, the back of them looks like a shopping cart, it has bars going up and down and then they have them going across, this is a shadow, that's the side of a shopping cart.

15. Interior of a Safeway store.

Questions: Where was this photograph taken? Why do you think it is a Safeway store? What season is it? How can you tell? What other label would fit suitably on the empty black space? Is it more likely to be shelves or freezers beneath the black notice board? Why?

Responses: School 'A', Grade 4. Safeway, which Safeway?, it is the one on Fraser, because of these signs, you always see them at the Safeway store, winter, Christmas decorations, Santa Claus, bell.

Responses: School 'B', Grade 5. Safeway because it has these, it also says Safeway on the wall, it is Christmas because of the signs and has Christmas decorations and a Christmas bell. It says Christmas on the outside, below the sign could be dog food, chocolate, ice cream, frozen pizzas, frozen carrots, canned food, shelves and freezers would be below the signs, it may be ice cream.



16. Portion of a bicycle seat.

Questions: What might this be? What features can you see?

Responses: School 'A', Grade 4. spring, shocker, shocks, spring from a car, spring from a bike.

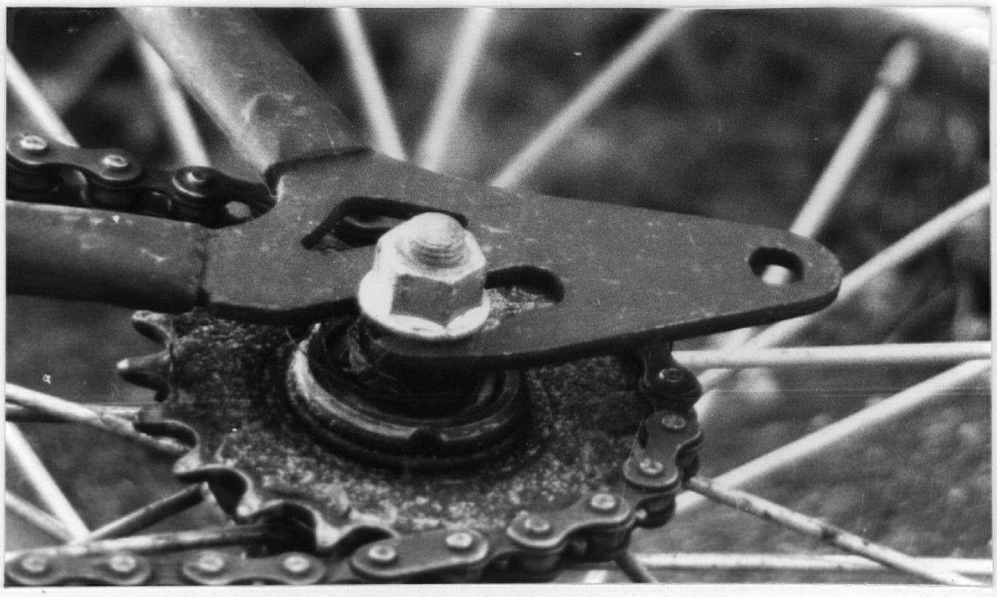
Responses: School 'B', Grade 5. engine, car, screws, like a tire, disc brakes there, shock absorbers, spokes, springs, something like a zipper, a can opener.

17. A larger view of a bicycle seat.

Questions: What might this be? What features tell you that it is a bicycle seat? Why a bicycle seat and not a motorcycle seat? From what material would the seat be made?

Responses: School 'A', Grade 4. spring from a bike, maybe a motorcycle, shape, all bikes have springs under the seat, that's a key.

Responses: School 'B', Grade 5. a bicycle seat, because of the top shape, a new frame, it is in the shape of a bicycle, it looks like a mattress, it's up here and if so you would have seen it all the way up to here, there are two kinds of bicycle seats, this is a five speed or a ten speed bike, this is to attach a bicycle tag with your name or else a little bag with a wrench or something, it is made from plastic or leather, because it is shiny, you can see the sun reflecting on it.



18. The rear sprocket of a bicycle.

Questions: What could this be? Why couldn't it be a motorcycle? What is the slotted part for? Is there any part of the chain that is different from the rest? Why is one link different? What is the special link called? Does the owner look after his bicycle?

Responses: School 'A', Grade 4. chain, pushcart doesn't have this (wheel), this tire, this is to hold the tire on to the frame, slot, slide this out, chain has been oiled, clips, part of chain, that part, something has to come out.

Responses: School 'B', Grade 5. bicycle wheel, bicycle chain, spoke and guard, the brake, the slot is there so you can adjust it, adjust it if the wheel is too long, you can push this back and the chain would become tighter, the link is fatter and it doesn't look the same, there is grass stuck there, the link is there so you can take it apart.

19. Portion of a shoe.

Questions: What could this be? How can you tell? Could it be a snake? What features tell us it is part of a shoe?

Responses: School 'A', Grade 4. shoe, shoelace, these things right there, braided, that part looks like a shoe, holes in it.

Responses: School 'B', Grade 5. I think it is a runner or a shoe, or something like that, that's a shoelace, it's too fat to be a snake, it's too wrapped around, a snake has scales, it is woven, that's sort of put across, it has holes and lines there.

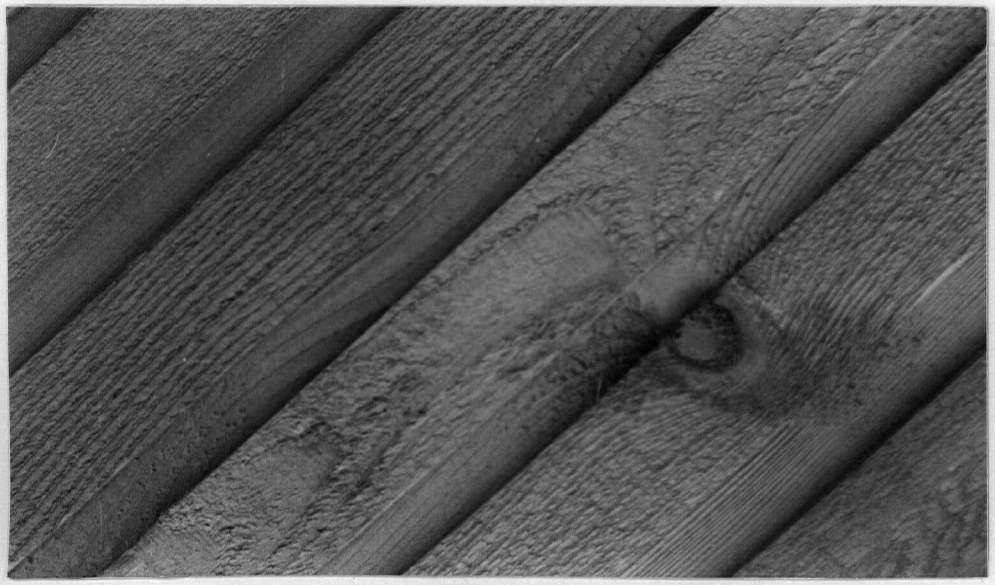
20. Three bricks with moss or lichen clinging to the surface.

Questions: What might this be? What different features can you see? Where are you likely to see this?

Responses: School 'A', Grade 4. rain, moisture on house, dirt, mud, water, frost, texture, grass with snow on it, straight lines, river, raining and you took the picture, ground, dirt and grass together, garbage.

Responses: School 'B', Grade 5. road, hill, a bicycle track, no it's a car track, it's a bicycle track, trees, could be a crumbling wall with moss on, it looks like a car track, a trail, bicycle track, it looks like a sideways H, the white things look like rocks, grass clinging to a board.

Set 2. These visuals are related to the child's surrounding environment. It is expected that the children may not have seen many visuals in this set.



1. Rough cedar wall panelling from a storefront.

Questions: What could this be? How can you tell? What do you think the unusual part near the centre could be? What can you tell me about the surface? How are these pieces of wood placed? Would the wood be smooth or rough? Which board would you most likely get slivers (splinters) from if you rubbed your hand against it?

Responses: School 'A', Grade 4. it is the side of a house, here is the wood, you can see lines on it, bark, nails, hole, it makes the tree grow, root, something sticky, knot, shingles, fence, have to sand it, nails that go right through it, slivers going only one way, pointy like steps, you can see down it, going down like the side of a house, like shingles, cracks, flat.

Responses: School 'B', Grade 5. wood, slivers, they sort of go like this, you can see the little cracks there, it goes on the flat, then it drops and goes up again, like stairs, could be a porch, a wall or something like that, the outside of a wall, going across all the way down, it looks like the outside of a house that hasn't been painted yet, it has this thing here, it has a knot, you can see the knot showing, it's a brown colour, it would be sand-papered, you can see a loose sliver.

2. A rock wall from outside a Safeway store.

Questions: What might this be? Where might it be seen? Would it be formed naturally or placed there deliberately? What makes you think so? Would the surface be suitable for a roadway or sidewalk?

Responses: School 'A', Grade 4. rock wall, dam wall, rocks on the ground, side of a river, part of a chimney.

Responses: School 'B', Grade 5. rock wall, it's deliberate, someone could have stacked them up, it has been put up a certain way, maybe they are old and they have cracked, someone's front garden, could be a road, like in Gastown, they have a road that looks like this, could be an old cobblestone road, it would be good on a wall.

3. Boulders and concrete on the foreshore.

Questions: What might this be? Are they all rocks? What features tell us that the shape on the right side is concrete (cement)? Where might you see this scene?

Responses: School 'A', Grade 4. rocks, dirt, weeds, boulders, gravel, ground, cement, rocks sticking together, like a sidewalk, smoother, like a different shape, different design, like a cave.

Responses: School 'B', Grade 5. corals, it's near the beach, boulders, trees, shrubs, bluestones, grass, sand, the beach, rocks, broken concrete, this is together, there are bricks there, it looks like the beach, when you are at the beach you sit back from the hot sand and when you want to get to the water you have to go over the rocks and coral.

4. Sailing boats with a freighter and North Vancouver in the background.

Questions: What type of boats would these be? How can you tell? Can you tell anything about where this was taken? How can you tell that they are not fishing boats?

Responses: School 'A', Grade 4. where is it?, it's here in Vancouver, Richmond, Horseshoe Bay, there is a fence around it, it is a boat dock, they are sail boats, that's not a ferry, that's a freighter, it's down by the train tracks, Stanley Park, North Vancouver, there is a man walking his dog, they are not fishing boats because they have sails.

Responses: School 'B', Grade 5. harbour of Burrard Inlet, I can see North Vancouver, it looks like a freighter, sort of a ferry, no way--a freighter, sail boats, fishing boats, looks like reels that they reel the fish in, those are motor boats, masts, piers.

5. Fishing boats.

Questions: What type of boats could these be? What features tell you that they are fishing boats? Would people live on these boats? How do they differ from sail boats?

Responses: School 'A', Grade 4. these have antennas, there is one boat here and there is a walkway to it, fishing boats have tires and bumpers on them to stop them bumping into the dock or other boats, they have bigger cabins, they could be house-boats, cabins are bigger here, they are thick at the bottom and thin on top, this is a fishing boat because they have names on them, so do sail boats because my Granps has one, they have all kinds of cabins on them, they are houseboats because they have curtains and things like that.

Responses: School 'B', Grade 5. fishing boats, trawler boats, fishing lights, these are fishing lights, tires, it is near the docks, there are the big poles, it is to stop it being scratched, trees, fishing boats, these things there look like where you put the fish down.

6. Bow of a freighter in dock.

Questions: What type of ship could this be? How can you tell it is a very big boat? What would the round things on the ropes be made of? What could they be for?

Responses: School 'A', Grade 4. a freighter, it has a real big anchor, and a real big boat, those are anchors, they are things to protect the boat, it's rubber, no, it's paint.

Responses: School 'B', Grade 5. ferry, no, it looks like an ocean freighter, a ship, a freighter, a ferry, no, there's cranes there, those things are anchors, it's a cargo ship, they are on the thing to tie to the docks, if they weren't they would make the ship fall back.

7. A well kept large house taken at Christmas.

Questions: What can you see in this picture? What type of house could this be? What clues tell you so? What season could it be? What are the things on the trimmed shrubs? What type of person would live in a house like this?

Responses: School 'A', Grade 4. a house, a bush, maybe a farmhouse, maybe a cabin in the country, the season? we think it is summer because it is sunshine and the leaves aren't off, evergreen trees, that is not evergreen, if it was winter, it should have snow, no it shouldn't, bushes with Christmas lights, therefore it must be winter, a rich person and his family live there.

Responses: School 'B', Grade 5. house, a big one, 'cause there is a whole bunch of grass, and looks tall, you can tell because it keeps going on, it can't be because the house goes around the other side, it could be big on the other side, the season is spring, no summer, oh Christmas lights, Christmas, some people leave them up all year round, they don't bother taking them down, the owner keeps his trees trimmed, you don't see any garbage around, rich persons who have a fancy house have windows like this.

8. Frontal view of a slightly older house.

Questions: What can you tell me about this house? What type of person would live in a house like this? Would it be a cloudy or a sunny day?

Responses: School 'A', Grade 4. a very rich person lives there because it is a big house, sundeck over here, sundeck over there, three windows in one room, no it's two windows and one door, they are rich because they have plants and everything, the house is quite big because it is two storey, there is a basement down there, it would be a sunny day.

Responses: School 'B', Grade 5. this is an older house, by the window, part of the paint is off, some of the paint is off and it is peeling, it has kind of marks on it, they don't take care of the trees and it looks old, the style of the house with the big porch and the stairs, the triangular thing at the corner of the house--usually older people have that.

9. A church taken at Christmas.

Questions: What would this building be? If it didn't have a name could you still tell it is a church? What is behind the person taking the photograph? Can you see anything unusual on the fir tree in front of the building?

Responses: School 'A', Grade 4. it is a church because of the grass, and it has a name, only churches have crosses, it has a rock wall, and lots of trees behind it, it is Christmas because of the lights on the tree.

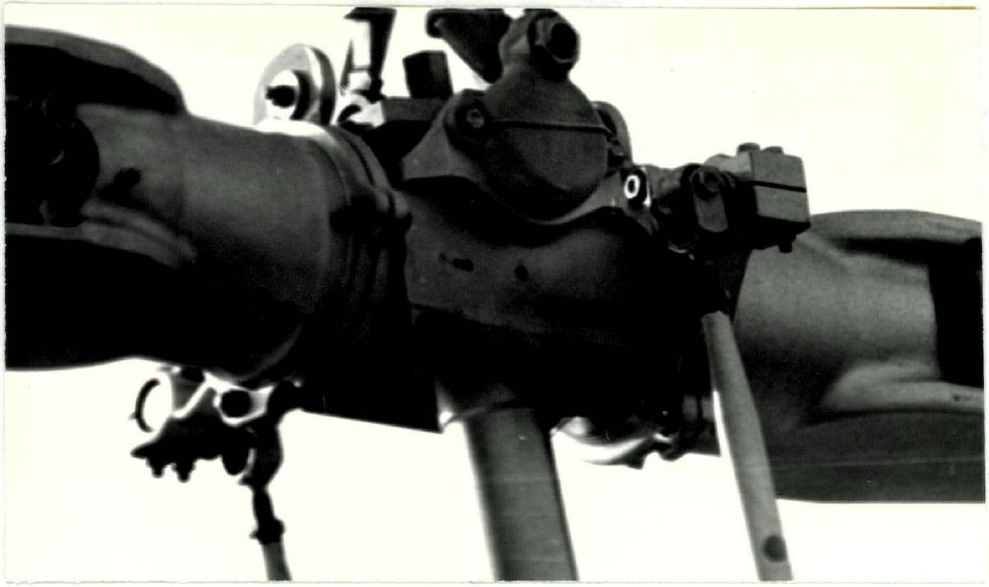
Responses: School 'B', Grade 5. church because it has a cross on it, it has a name on it, a forest in the background and behind the photographer because it is reflected.

10. A seaplane taking off with North Vancouver in the background.

Questions: What type of plane do you think this could be? Why? How many persons would it carry? What can you tell about the mountain? Is it taking off or landing?

Responses: School 'A', Grade 4. Stanley Park, it is a water plane because it has skis on, very low flying, probably going to land, it's slanting down, the mountains have lots of trees on them and there is a little bit of snow on the mountains.

Responses: School 'B', Grade 5. plane, seaplane because of those things on the bottom, platoons, floats, it is landing because it is going low, going down, it is slanting down, planes usually don't go that low.



11. The main rotor of a helicopter.

Questions: What could this be? What tells you so? What mechanical parts can you see?

Responses: School 'A', Grade 4. it is the propellor of a helicopter, because the things are there, you can see twisted wire, 6 bolts, nuts and a name plate so you can see who's it is, what company it is from, if it breaks they can fix it.

Responses: School 'B', Grade 5. propellor of a helicopter because on T.V. you see helicopters, it looks like it on top, this looks like a propellor and this is the shape, over on the bottom it has a thing that turns it around, right there in the middle, there's a turret, spring bolts, chain, could be an oil derrick, those things that go deep in the ground.

12. A helicopter.

Questions: What can you tell me about this picture? What could it be used for? Is it moving? How can you tell?

Responses: School 'A', Grade 4. police helicopter, because of the round things on top, it is for little things that kills bugs on, it may be one that sprays flowers, it has ear muffs and radio things, we can see numbers and Vancouver Island.

Responses: School 'B', Grade 5. helicopter, there is a machine gun, its radar is not off the ground, these could be the rudders of it, it is called Vancouver Island.

13. The reverse image of photograph 12. A helicopter

Questions: Compare this photograph to photograph 12. What is the difference? Is it the same plane? Explain the reason for Vancouver Island being spelt backwards in this photograph.

Responses: School 'A', Grade 4. both the same thing, that is the left side of the plane and this is the right side of the plane, the colour of the ground is different, one side is longer than the other, they're different, but look at the grass, one is darker, there is something on the bottom that looks like dice, it looks like water of a light.

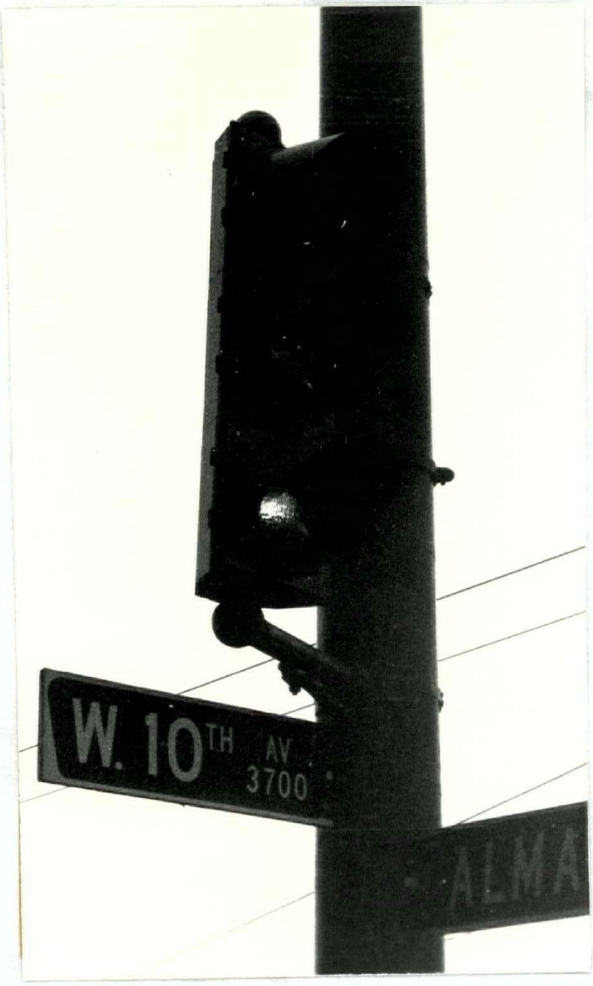
Responses: School 'B', Grade 5. this is the other side, I don't think so, this should be on that side, then that could be the shadows, the shadows are on the other side, they are the very same, you can see the head phones hanging in the same way, you can see the white thing where they have taken part off, it is the same shape on both sides, same picture except taken from a different side, you can tell, Vancouver Island is spelt backwards, you switched the film around.

14. Different helicopter taking off.

Questions: Is this the same helicopter as the previous ones shown? How can you tell? Is it flying or standing still?

Responses: School 'A', Grade 4. this is a different helicopter because of the different name, it is flying, landing because it is going lower, lower there because it is going up, a pilot is there.

Responses: School 'B', Grade 5. it's pointing up, it's flying because you can see the water below it, a man is inside, point is pointing up, over here the top is different, a different number is on top.



15. A lamp-post at the corner of West 10th and Alma with the traffic lights showing green.

Questions: What can you see in this picture? Where is this post situated? What colour is the light?

Responses: School 'A', Grade 4. a street light and a sign to which way, West 10th and Alma, the street light is green because it is on the bottom.

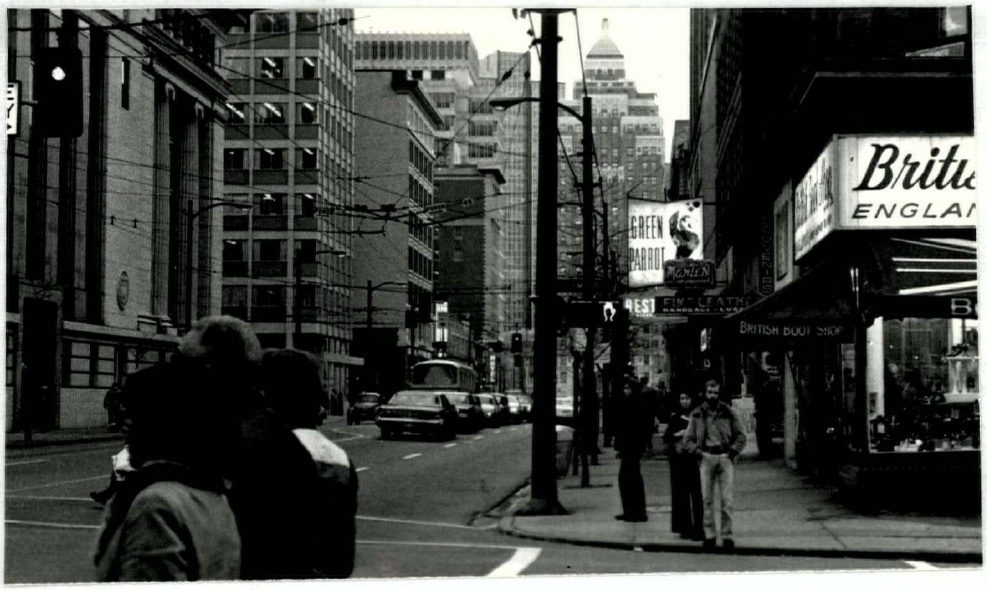
Responses: School 'B', Grade 5. lamp-posts and signs of two streets, Alma and West 10th, crossing lights, thirty-seven hundred block, the lights are green because green is always on the bottom.

16. A street corner, corner of Alma and West 10th.

Questions: Where is this situated? Can you see the pole that was in photograph no. 15? What colour does the traffic light show? How do you explain the fact that each pole says West 10th and Alma?

Responses: School 'A', Grade 4. this is the same, it is a red light and the other is green, you can see the gas station on the corner and the cars, the light is supposed to be on this one but it isn't, the cars are stopped so it must be red, you took this side and while you were waiting to take the other picture, the lights changed and you took it, and it was a red light and the poles are different, one is wooden and the other is steel, and the lights are on a different pole, that is the other side of the street.

Responses: School 'B', Grade 5. Esso gas station, it is the same lamp-post, no it isn't, because there are no street lights, there is a lamp-post like that on the other side of the street, lights are on red, all the cars are stopped, the lamp-post is red, the other side of the street is lighter on the bottom, the lamp-post by the gas station is wood and the one on the other side is steel, the steel has little things sticking out and is not rotten, the wood has brown stuff and looks like oil, and the steel is much smoother.

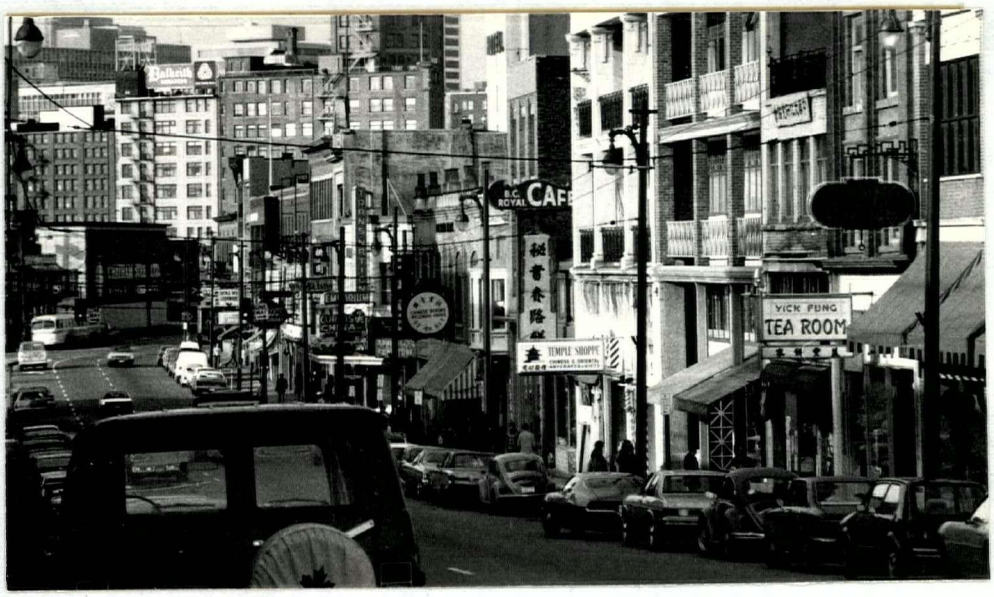


17. A city street, West Hastings and Seymour.

Questions: Is this photograph taken in the city, the suburbs, or the country? Why do you think so?

Responses: School 'A', Grade 4. it is downtown because I can see where my dad used to work, it is in the city because it has red lights, big buildings, buses, downtown they only have the lights where it says 'one way' because lots of people and lots of cars.

Responses: School 'B', Grade 5. near the Granville mall, buildings, lots of buildings and stores, Seymour, 'one way', highrise, city, because of lots of cars and lots of people, lots of stoplights, stores and restaurant--Green Parrot.



18. Section of Chinatown, Vancouver.

Questions: Where would this photograph be taken? Would it be a two way or a one way street?

Responses: School 'A', Grade 4. Chinatown, buses come here, Chinese writing, it is Vancouver because I have been there, there is the Hotel Vancouver.

Responses: School 'B', Grade 5. near Chinatown, here is the tea room and the Chinese temple, it is in Vancouver because you can see the top of Woodwards in the background, no way, that's the radio company.

19. A suburban street, West Broadway.

Questions: Would this be in the city, the country or in the suburbs? Would trolley buses go by here?

Responses: School 'A', Grade 4. Broadway, Fraser, buses go by there because of the electrical lines, that's on Broadway, I think I have passed there before.

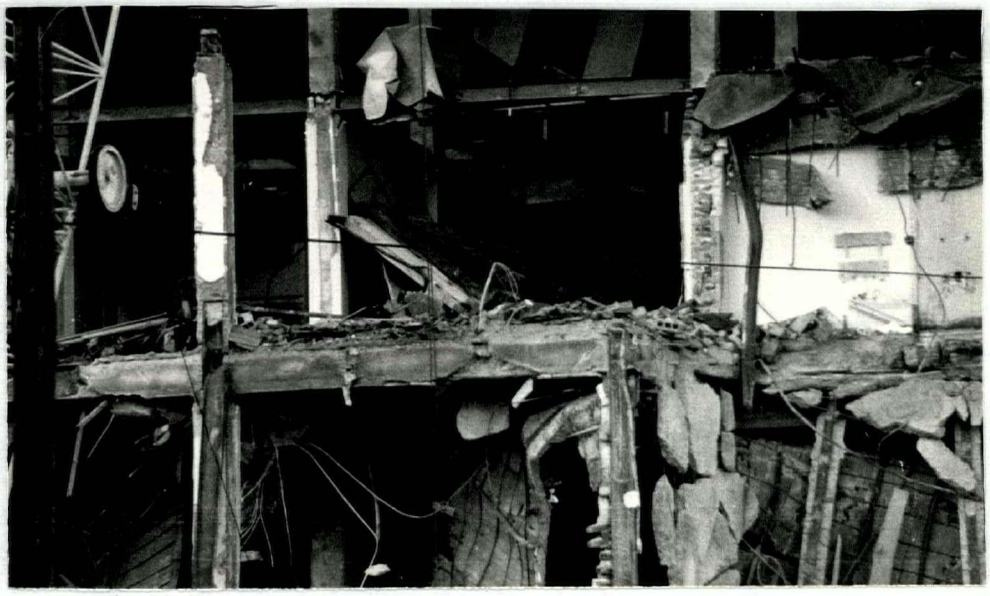
Responses: School 'B', Grade 5. not in the city, Kingsway, not downtown because not many buildings, not much traffic, no highrises.

20. Sears building in final stages of completion.

Questions: What type of building would this be? Is it being built or being pulled down? What makes you think so?

Responses: School 'A', Grade 4. they're still building the building, they still have that thing on the outside, outside elevator, ladder.

Responses: School 'B', Grade 5. Sears, because of the sign, because it is a round sign, being built, because it hasn't been finished, they have an elevator attached, side of the building isn't finished, and they all have steel things where the men can put planks of wood on to stand on and work, and the crane is on top.



21. Side of a building being torn down.

Questions: What is happening to this building? How can you tell? What was the building made of? Is it built of the same material as the building in photograph 20?

Responses: School 'A', Grade 4. destroyed, pulled down, because it is all broken, the place has been condemned, because it is all wrecked, probably just being built, this one is all broken and this one is all together, not made of the same materials, cement, old cedars.

Responses: School 'B', Grade 5. this is being torn down, if they were building it, the place would be neater, they are just letting it fall down and break, that is for hitting it down, this is built of different material, this is wood and this is rock.

Evaluation of Pilot Testing With the Grade 4 Children

An examination of the responses of the children reveals that as the sessions progressed the children not only perceived more in the visuals but were attempting to express themselves more.

In responding to the earlier photographs the children gave such responses as, "dots, orange, things with seeds inside, brownish, lemon, oval shape, looks like steel, has a thing on the end."

The final set of photographs brought forth such answers as, "this is a different helicopter because of the different name, it is flying, landing, because it is going lower, lower there because it is going up, a pilot is there."

Children were looking for more visual clues in the photographs. This perception is reflected in their thinking, e.g., "the cars are stopped so it must be red."

Vocabulary

The visuals helped the researcher ascertain what vocabulary the children use and the limitations of their present vocabulary. This would be an excellent way of searching for words that the children would use instead of trying to make do with unsuitable words, e.g., "it gets lines that get big and then smaller and smaller" (gradation, gradual), "it has a real big anchor and is a real big boat" (large, immense).

After using both kits with the Grade 4 group, it was decided to omit photograph 21 from Set 1. While being an interesting photograph from the point of view of pattern, it was not as related to perception as much as the others. All others were felt to be very related and were kept in the set.

Evaluation of Pilot Testing With the Grade 5 Children

The responses given by the grade 5 children show that this group has greater perceptual acquity to start with. When shown photograph 8 in Set 1, the grade 4 children could identify it but could find very few clues as to why they thought it was an onion. In contrast, the grade 5 children were able to identify the different kinds of roots, the layered skin, and the lump which they thought could indicate that it may be rotten.

Initially they also had greater discriminatory sense. They were able to see the more subtle differences from the photographs. Words such as 'shrivelled, brittle and cracking' were seldom used by children in the lower age group although the children would know the meanings.

The grade 5 children had a much larger range of vocabulary on which to call.

Using the pilot session as a guide, the researcher felt that the Visual Stimuli Kit would be most useful in developing grade 5 children's interest and discrimination towards the environment.

A final list of questions was made, based upon those asked by the researcher when working with both grades.

Summary

Pilot testing was undertaken with a grade 4 and a grade 5 from two schools from the Vancouver area. Visuals were shown and questions were asked about each. Responses were recorded and analysed. It was concluded that the visual stimuli kit would be suitable for further use with only one visual omitted.

Chapter 4

FURTHER TESTING

At this stage, both sets of visuals were considered relevant for the particular purpose for which they were designed. An appropriate school for further testing was sought.

One school was chosen from the lower mainland district of British Columbia. The researcher felt that it represented a middle socio-economic area of the Vancouver and lower mainland districts. This school will be called school 'C'.

Children from three grades were selected from this school, grade 3, grade 4, and grade 5. All children in the grade 3 were given sessions using the visuals. In the 4 and 5 grades a random sample of 10 children was selected. Although all children in the testing program were chosen randomly, the researcher felt it advisable to give all of one grade the visuals, to ascertain whether responses represented all children in that grade.

Testing With Grade 5

Based on the findings just described and in the interests of seeking further insights about the potential and limitations of the kit, the researcher obtained permission to select a random sample of ten students from one grade 5 class for testing. Eight boys and two girls were shown the visuals in the morning and afternoon. Responses were very similar to those obtained from the grade 5 students at School 'B' during pilot testing. All students were enthusiastic about the visuals and retained their span of attention for the duration of the testing. Due to the fact that the class was able to talk freely during the time and the

added fact that they had come from a less structured situation, slight difficulty was experienced whilst conducting the discussion. Children's eagerness to participate in one or two instances almost prevented responses from a few of the less eager individuals. This was basically a procedural problem that would occur no matter what was discussed and as such would not affect the validity of the visuals. Responses were tabulated and analysed as follows:

Responses from Children in Grade 5 at School 'C' when shown images from the Visual Stimuli Kit.

Set 1.

1. two oranges, one orange, it has that little thing on the end, and roundish like an orange, could be a golf ball with a mark on it, an orange and an apple, two oranges lying on the ground, mushrooms.

2. looks like two eggs and an orange, an orange, a rubber ball and that back one is a rubber ball also, sort of a sponge ball and a lacross ball, sponge ball because they put sort of paint or plastic coating over it and it cracks. If it was an orange it wouldn't have that stripe on it, they would have it all together, a sponge ball and that's a ping pong ball, ping pong balls look like that, could be a croquet ball, it has cracks.

3. a bird nest surrounded with eggs in it, oval shaped, looks like chicken eggs 'cause they're around it, a bird nest because of the straw, or sticks or something, they are touching each other.

4. just a bunch of eggs on grass, they look like they just laid them there, just chicken eggs or something, this one is closer because it's on top of everyone, I think it's this one because it's cut off, it's closer because it's all on top of the other ones, and you can see all of them, it's folded.

5. golf ball, it has those dots in there, oranges, because it has all those dots on it, could be a peach, it has sort of hair, a tennis ball because it looks sort of fuzzy on the outside like a tennis ball.

6. a lemon, because it's got those two parts on it, 'cause it's shaped like it, could be a lime, limes are greener and a lemon is yellow and that looks like a lime because it's darker.

7. a tap, it's a kitchen tap because the bathroom tap doesn't have a shape like that, could be either really because some of them are like that, and it looks like that one over there, it doesn't have that stubby part coming down, so he couldn't do it as good, on the side of the picture you can see how you can turn the water on, it's a tap because you can tell by the shape of it and it's attached to the sink, it looks like steel, it looks like a kitchen tap because you have to connect it and put these things up in your sink so your dishwasher thing stays on.

8. onion, onions look like that, they look all crumpled, on the end of it they have that papery stuff on the outside, skin--that stuff that goes in and out and in again, it's probably an onion because when you touch it you can see some sort of a dint and the skin comes out a bit and the roots have a new skin over on the side.

9. onion, that one's cut open, this is an onion because it looks like that, four onions, no three and one's chopped in half, they're all onions but that one in the corner, the peel's been taken off, it shows one with peel on and it's just coming off and the peel's already all off and it's ready to cut or something.

10. it's like the end of a pumpkin because pumpkins have those things that go up so when you cut them you can carry them by the top, looks like the top of a banana, they're all together because it's sort of like wood and they came up to the top, and they all join like that, sort of seems like zucchini, comes down and shows a picture and then comes up, looks like two apples on the bottom and a worm coming out of one of the apples, could be a broken branch.

11. two bananas and three apples, they're sort of shaped like a banana, they're never clean without a spot so you can tell by the bottom part, and the stripes on it, and those dots you can tell if they're ripe or not, like, you can tell if they're starting to turn brown or something, they have bigger dots on them, you can tell they're bananas because that's the colour of bananas, they look like it too, second grade apples because they look darker and they have worms crawling through, first grade apples because they look clean and everything, second grade apples because they have spots and they're dark.

12. it's a carrot 'cause it's sort of pointy, because it has lines on it, it's a carrot because you can sort of peel the top off it, you can tell by the shape.

13. it is a carrot, four of them, when you pull carrots out, they look all dirty and that looks dirty, you can spray them with the water hose, it looks white and shiny and looks like water at the side.

14. looks like a Safeway cart, looks like a greenhouse because they have the skinny little wood that makes it go up and there's a basket in the middle, street buggy, see that line there, well that's from the end of the buggy, looks like a jail cell because of all those bars, a wired fence, a fence in front of a greenhouse, that's wood so it's a greenhouse.

15. looks like a Safeway store, summer because it has lights on, Christmas time, it has all those bells up there, Santa Claus and all those like ropes, there is a wall on the side and it says Seasons Greetings, a sign to go in there could be ice cream, it would probably be in the frozen food section, meat and chickens are frozen.

16. a spring, it looks like wires to your house 'cause it has shiny little sections like scales, could be a hose going around and around, looks like the inside of those freezers there, they have bars and stuff going down, looks like a tractor type thing 'cause you can see the tracks going down by the side.

17. a bike seat, it's shaped like a bike seat, probably a car seat because when you bounce back on a car seat, the springs bounce back, looks like a motorcycle seat because it goes downward like that, it's a bike seat that one sits on, it's a one seater, it's the same shape and doesn't have those fancy things on the side, it is made from leather, the leather looks like it could be the top of a car, that part is so you can put a bag with things in, it's for your name.

18. looks like where all the spokes come together and where the chain comes together on a bike, it could be a motorcross, no, the spokes are off there, it must be a bike because the chain is so small, just an ordinary bike 'cause the tires are skinny and that thing is to loosen the wheel up and down so you can take the chain off and put a new one on, that is the master key or something, it's all greasy, the chain has holes for the back of the wheel and it turns around in the pinion and gets the grip of it, it looks like where the pieces of chain join, he doesn't look after it because it is lying down, it's greasy, it looks sort of rusted in there.

19. laces on a guy's shoe, running shoe 'cause you can tell, it has those, snakes can't make a knot and make those two round things, on the shoe lace there is a whole bunch of different kinds of threads going together and it can't have that many kinds of threads.

20. side of a ditch, hill with dirt coming out of it, mud on the bath, piece of metal or something, looks sort of rusty, moss on a brick or something, 'cause you can see hairy stuff hanging down, mud 'cause it's all gushy, looks like a chimney that has moss growing on it, bricks leaking or something.

Set 2.

1. houseboards going sort of side slant and all the boards look the same, it has to be tilted a bit more, then it's the side of a house, should be upside down, the other way, it's not painted but it looks like rough wood with a knot in it, slivers.

2. rock fence, made as a fence, an old fashioned fence or something, could be rocks all piled up, they are building new houses now and some of the fireplaces go like that, and they put a whole bunch of bricks to make it look fancy, it could be a beach because beaches have lots of rocks on like that.

3. that's big rocks, can't be all rocks, big boulders on a hill, could be a shooting star and it came and landed and broke into pieces, it looks like the dump because in the back it looks like pieces of garbage mixed in with the dirt, that's boulders, no, coral, it looks like they are trying to make houses and they had to push all the dirt and they had to move the big boulders, looks like a desert and they had to move they had to move the boulders.

4. looks like boats in a dock, sailing boats, fishing boats don't have big poles, they are sailboats, you can tell more than the big poles, in one of them they have the mast but it's down, in the very back it looks like there is a freighter or something, you can tell it's a fishing boat, sailboats have new things, they don't have big, big poles, they look like sailboats, a whole bunch of yachts there and everything.

5. those are fishing boats, looks like Steveston 'cause it's all junked up, fishing boats 'cause they have tires on the side, and there is one that looks like an older motor boat, and the rest looks like old fishing boats, fishing boats 'cause they are made like that, 'cause there are nets everywhere, they have lots of nets to see all around, like a normal boat has a motor, but this has a motor in the bottom, and this has a round hole in it, they have a crane and they lift the ship nets up, that one looks like a tugboat.

6. a ferry, a cargo boat with cargo, you can tell by the post and all the string around, a cargo ship because it's made like that, it's not a ferry because it would be cleaner and made differently, you could drive it in the front or it would have a crane where you could lift it out, but they don't have ferries like that, those cranes don't lift cars up like that, they have this big door, it could be a cruiser, a cruiser with cranes? the cranes could be background.

7. a rich person could live there because it sort of stands up, it's a neat house, he's right in the middle, not rich, not poor, spring because you can see all of the trees and you can see daylight, could be summer because it looks sunny and the trees look green, couldn't be fall because the leaves are not all on the ground, it's not summer because it looks dull and drimsy.

8. a rich person, an old person's house, because it looks kind of old and rickety, not much flowers around, it has a little garden there, it seems out of pattern, like most new houses are like this, it looks like a fifteen or sixteen year old house, like they don't make styles like that any more, it's sunny because of the shadows, reflections off the windows there.

9. a church, there is a cross in the window, all churches are shaped like that with a point on the top and a floor opening, it's a church because if it was an apartment you wouldn't have a window like that, it looks like fall because the leaves have fallen off the trees, winter because it looks foggy, a church has two doors and no windows.

10. it's landing 'cause it's low, it's a water plane, it would take six people, two seats, one in the front and two in the back, about sixteen people maybe because look at the windows on one side and some on the other side, it's winter because of the snow on the mountains.

11. helicopter, the thing that goes on the top of the helicopter, on T.V. shows they always show those two things and the middle one first. It looks like the two blades of a helicopter, the two parts that go we can see.

12. it's a chopper, just an ordinary helicopter, it's going to Vancouver Island, it's standing still because you can see part of the blade back there, it's not going because no-one's in there.

13. it's the same but a different angle, on the other side you took a picture of the helicopter, one on the left side and one on the right side, in the background you can see a building and in this you can see the same building, you can see that's the same helicopter because it has a point in there.

14. different helicopter, police helicopters are shaped like that, it's taking off because you can see the sea, the other one had two stripes on and this didn't and there is a man in it and it's taking off, it doesn't say Vancouver Island.

15. city or town or something, could be Vancouver, green lights because the green is usually at the bottom.

16. yes, same pole, no different poles, it's just on the other side,

this has wires near the bottom and the other has wires near the top, the stop light says red, could be the opposite side of the street.

17. Gastown, could be England, downtown Vancouver, downtown or England because in England they have all big buildings, could be Seattle, it is in the city.

18. looks like Chinatown because Chinatown has a lot of things like that, buildings have got flat tops and then there is big buildings, it says Tearoom, you can see Chinese writing on there, old buildings and stuff.

19. not in the city, real big streets, Hastings, it is in the city, a shopping area, looks like just a town, it doesn't have lots of cars zooming down the street, it has a lot of cars parked and it doesn't have big buildings in the background, it's early in the morning and there is cables going across for city buses.

20. new Sears building, a crane, they're sort of building it, because those ladders wouldn't be there if they weren't building it.

21. a building being demolished, looks sort of blown up, could be a crane with a ball breaking part of it, looks like it had a fire, being torn down because the wires are all ripped and everything is slanted, it wouldn't be in that shape if they weren't tearing it down.

Generalizations Derived from Characteristics of Responses From the Grade 5 Children

1. Overall, their vocabulary was more extensive, e.g., "lacrosse ball,

croquet ball, paint or plastic coating over it." Although this was so for the majority of students tested, not all children had this range, e.g., "it looks like that one over there, it doesn't have that stubby part coming down, so he couldn't do it as good."

2. The children used logic in many cases to deduce the answer, e.g., "it's not a ferry because it would be cleaner and made differently," "it could be a cruiser, a cruiser with cranes? the cranes could be background."

3. The children appeared to have a much fuller understanding of the subjects, e.g., "pumpkins have those things that go up so when you cut them you can carry them by the top."

4. There was a realization that there were other possibilities or solutions to the problem. "It's probably an onion because when you touch it you can see some sort of dint . . ."

5. There was an overall tendency to short cut the perceptual process. Children were inclined to name the objects rather than look at the visual clues beforehand. Often the children guessed what the subject was, went back and looked at the clues and re-evaluated the answer.

6. The children had a bigger range of possibilities for the images. Generally, they have more to say about each.

7. In Visual No. 1 in Set 2 they were quite adamant that the photograph should have been tilted sideways and felt uneasy about the boards being in an abnormal position.

8. The children were more inclined to 'brainstorm'. They made a concentrated search for the solution.

9. In several instances, the children whilst looking at the photograph,

talked about what they know rather than what they could see, e.g., "fishing boats 'cause there are nets everywhere, this has a motor in the bottom and this has a round hole in it."

10. The children had a broader understanding of the environment, e.g., "It could be downtown or England because they all have big buildings like that."

11. Overall there was a more acute perceptual awareness with the children at this age level, e.g., "It's early in the morning and there are cables going across for city buses."

Testing With Grade 4

This particular class was selected because the children had been given systematic training in perception during the preceeding six months. Reinhold Visuals had been presented to the students by a visiting university professor for the express purpose of developing children's abilities to perceive, discriminate, and discuss art and environmental visual material.

Consideration was given to whether previous training would affect children's responses, whether this might be evident in testing, and to what extent might there be degrees of difference. In the researcher's opinion, training affected the responses, with the children perceiving images almost to the same degree as the grade 5 students. Moreover, the difference between quality of responses between this class and children in the grade 3 class was great. It seemed evident that whilst training does develop children's perception and awareness, maturity is a necessary prerequisite.

Responses from Children in Grade 4 at School 'C' when shown images from the Visual Stimuli Kit.

Set 1.

1. looks like an orange because there is little holes and cracks in the round skin, and that thing on top, that funny little thing could be a walnut, a walnut at the top has lines on it, it looks like that, that could be grass, eggs don't have cores, eggs are smooth.

2. oranges, orange and two balls, a ball because it is round and it has this line across the centre here, most of the small balls have lines across, it means they used two halves and glued it together, grass or lawn, a sponge ball, it looks like one, it has lines and it is big.

3. eggs, they're smooth and has an end like an egg, it's white, eggs are white, it's pure white like an egg.

4. eggs, the one on the top is the closest because it is bigger, no it isn't, all of them are the same size because it looks closer, that one is because the person who is taking it only got half of it in so it must be closer to him.

5. orange because it has little dots on, an orange, an egg and a ball, an apple, it could be a grapefruit.

6. a lemon, the shape of it, lemons have those little points at the end, the thing on the top like a lid, that's grass, that lemon on top is sitting on other lemons.

7. a tap, because it's the shape of a tap, that, right there, that's where the water comes out, you can see part of that thing where you turn it on and water comes out, because it's on that thing and has those things that are on a tap, same colour as a tap, that part on the very end is always on a tap.

8. an onion, a bulb, it could be a bulb because bulbs have those and it has root growing out like a plant, I think it's an onion because of the skin on it, the skin is thin and some of it's off and some of it's all light and it's thin and you can peel it off easy, an onion because it has those little white shapes.

9. an onion, bulb, I think that is an onion because it is cut in half and you can see the insides, there's rings in there, that's how onions are, these things, roots, are like they are peeled off.

10. that's a bulb, no a banana, a cucumber, cucumbers have prickly stuff on it, a rosebud, it looks like bananas because bananas have that and are attached, and it has that thing on the end, it looks like an apple, part of an orange, that's the core, yes, it's all apples and a banana.

11. apples and bananas, it's a banana because it looks like a banana, bananas are long and sort of skinny and they have polka dots on, and they're yellow and they grow on big stacks on trees, that's an apple because it has a stem on it.

12. carrot, because of the shape of it, carrots have those lines on beside them and they're long and the top is fatter than the bottom.

13. carrots, four of them, you can see the part where it grows from, you know where the lettuce stuff is on top of it, it looks like a carrot because as you get to the top it gets rounder and more fatter.

14. shopping carriage, a basket, a metal one, a fence, a window, it looks like a shopping carriage because at the back you can see like a fence, you can see wire, you can see food.

15. Safeway, one of the lines, at Christmas time, because of the bell and Christmas decorations and there is a Christmas tree out there, ice cream would be suitable because it is sort of like pie fillings 'cause they're all like desserts, frozen foods, this side is frozen stuff and that side is where they keep the sandwich fillings and stuff.

16. the thing under the peat seat on a bike, shocks, springs, like a bike seat, there is a spring right there to make it softer and it has springs going right there, and that side looks like the side of a seat, those things, they have them on a bike.

17. a bicycle seat, it's shaped like your legs can go there and it has a spring on it, could be from a motorcycle, this could be made from leather or something because if it rains then you can sit on it and the water won't get into the sponge underneath it, so it won't tear easy, you can hook something on to that, like one of those light things.

18. a chain on a bike, a bike wheel, that is so the bike will hold together, it's there so it won't fall off or something, you put the wheel in so it won't fall off, it's an ordinary everyday chain, there's a link that holds it together or to take it apart, that looks like a shoe shape and

the other one's kind of roundish, he doesn't look after his bike because it looks like it's lying on the ground, there's rust on that thing, that's oil and it has string on it.

19. a shoe because it has laces on it, it has those holes in it, it couldn't be a snake because it doesn't look like it and a snake can't tie itself in a knot, at the end there's a kind of tape thing.

20. an oven all dirty, rocks on the ground, rain on the window, side of a mountain, a wall, rocks or something and little plants, grass, a sidewalk, could be rocks on a field and the picture's taken from a helicopter.

Set 2.

1. a fence, a wooden fence, like a wood crate, a box or inside of a house like in a ditch with some wood over it, it looks like they took a picture sideways of a house outside, like a house from outside, it has a knot in it, it hasn't been painted, might be painted white, no brown, no, it might be painted because the pictures are black and white, the wood is outside because of the grooves, rough wood because there's all the slivers and stuff in it.

2. the side of a church or a rock fence, a stone wall deliberately made, not a sidewalk because there's holes and stuff, and you can fall and hurt yourself.

3. there are rocks and there is a hole, that's not rocks, that is sand, there's big rocks, trees, grass and a big pile of sand, a beach, looks like gravel or sand, cement, there is a rock in that hole down there.

4. a place where you can keep your boats, fishing boats, sailing boats, big masts, vacation boats, a big freighter, a ferry.

5. fishing boats, that's a tugboat there, there's an old black one there, with the wheels on it, there parked by the river place, and there's usually lots of old stuff around it, people don't live in there, that one right at the very front maybe.

6. a freighter, a ferry, because it's really big, because it doesn't have an upstairs place where you can look out and see all the scenery like a ferry has, I think it is a freighter because it has a crane on it, ferries have big spokes sticking out.

7. a house, a rich person's house, lots of trees and it is private, medium because it doesn't look like a rich person's house, and it doesn't look like a poor person's house, summer because the trees are usually hanging low, it has to be after Christmas because they have just taken down the lights, winter.

8. old people, rich person because it's big, it's old because it has all those vines, it has a funny colour to it and it kind of looks weird, all the wood looks like it's kind of eaten up, there's a coal space right there underneath.

9. a church because it has a cross there, and churches usually go up like that, like a vee upside down, it has a steeple and says church there.

10. it's taking off because it's close to the water and it's going to land on the water, and it's a water boat because it has those floats on

the bottom to keep it up, it would take three or two people, twelve because there's window spaces plus the two pilots, eighteen people, the snow is on the mountains, it is winter.

11. a construction machine, an oil pipe, a helicopter propellor because it has those pipes going up and it has one on each side.

12. a helicopter, it's landed, it's just sitting there, it's not moving, you can tell it isn't moving because all the grass would be blowing from the propellor, you can tell by the rudder, it isn't moving.

13. it is the same helicopter taken from a different angle, you can tell that one is going to go up because it is going up at the back there, nobody's in it, you can see the scenery behind it, if you put them together they seem the same, like twins, both the same scenery, that was taken on the same side, you can see that double, they had two helicopters and they took one picture with one and another picture with another, no, same helicopter, one from a different view.

14. this one is taking off because it's sort of on a slant and there is a person inside, different helicopter because of a different window, this one doesn't have a big stripe and doesn't go upward, that has letters on the bottom and they're different from these ones.

15. the lights are orange, no red, no green.

16. same lamp post, no a different one, no because I don't see the light, there is some wire there and there it isn't, right at the very top, that one has no lights on, that could be the other side and that could be the other side.

17. a city, because you can see people and a whole bunch of stores, there's a whole bunch of tall buildings, it says England on there, no, that's just a store, no, it's not England, it's downtown Vancouver, because of all those big stores.

18. a city, downtown, because downtown they have that big building with all the cars and it's crowded there, I saw your Dad's car, it's crowded.

19. a town, that's going out of town because there's not many buildings and it's not very busy.

20. a store being built, it's Sears, they didn't have the elevator outside, they had them inside, there's windows with no windows in them, yes, there is.

21. building being pulled down, it's all raggedy and everything and wood hanging from it, and you can see the bottom part of the crane, I can see the brick, it's all cracked, you can see the wires hanging down and that white stuff there, it's made from wood, shingles, bricks, cement.

Generalizations Derived From Characteristics of Responses From the Grade 4 Children

1. The children were most articulate about identifying the visual clues. In contrast to other classes tested, the children immediately were able to identify relevant features in the visuals. For example, in the first visual that they saw remarks were: "looks like an orange because there is little holes and cracks in the round skin." Children in the other classes made similar statements only after seeing many

visuals, not immediately. This was to be expected, however, as this class had been given training in perception during the previous six months.

2. The children based their responses in many cases on past experiences, e.g., "a sponge ball, it looks like one, it has lines and it is big."
3. When compared to the grade 5 children, the children showed a lack of understanding in one or two instances. In attempting to explain which egg is closest in visual no. 4, Set 1, the grade 5 children are most inclined to see the overlapping whereas the younger children give answers as "because it looks closer, that one is closer because the person who is taking it only got half of it in so it must be closer."
4. The children did not have as wide a range of vocabulary from which to draw when giving responses, e.g., "because it's on that thing and has those things that are on a tap."
5. There was very little difference between the children in grade 4 and the grade 5 children as to the amount of correct responses. Their previous training in perception was considered to account for this fact.
6. Children were more inclined to offer many solutions as to what the photograph could be. The grade 5 children were less inclined to give outlandish answers.

Testing With Grade 3

This class was randomly split into two sections, ten children in one group and eleven in another. Sessions were given in the school library during the morning. As with all pilot testing, all children were

encouraged to give their views on each photograph. There was no appreciable difference in the responses from each group. Children responded similarly to the visuals. It can be argued that grade 3 would be an ideal time to introduce the visuals to children. Both boys and girls were enthusiastic and most interested in each. As can be seen in the following responses, children developed discriminating techniques towards the later section of the sessions.

Responses from Children in Grade 3 at School 'C' when shown images from the Visual Stimuli Kit.

Set 1.

1. eyeballs, mushrooms, oranges, because of the shape and they look the same, this one doesn't look like an orange, because it's different, that one looks like a bomb because of the little things on the side, watermelon because it's bigger, grass because it's shaped like it and it's sort of tall, it looks green.

2. orange, melon and a ball, two balls, that's a watermelon and that's a ball, I see a stripe in between the ball, it's smooth and it's round, stripe, someone could have picked at it, worn out, maybe a globe, it's shaped like it, it's not in colour, lines--because that's the way they make the ball--mold them.

3. eggs, shaped like an egg, looks like a nest, balls, they look like it, chicken eggs in a nest.

4. seven eggs, could be another egg behind those three, the closest egg is this because not much of it shows, and it would be really close,

that one because it's right in the middle, that one because it's bigger, he might have made a design.

5. oranges and an egg, that is smooth like an egg, and this has little dots the same as a golf ball, you can hardly see the dots the same as the golf ball, all oranges, oranges and eggs.

6. lemons and eggs, lemons, it has a part that goes out on it, it's round and shaped like a lemon, flat a little, a lot and then round again, orange and a person put his finger in.

7. water faucet, I can see the tap on the side and it looks like a water faucet, and it looks like it's metal and it's supposed to be round like that, and you can see the sink, you can see the water there and the tap, you can see little germs on it.

8. onions, no skin or peel, I can see roots, white funny things, coconut, round like a coconut, and it is bigger on one side there, looks like someone has tried to crack it open, you can tell it's an onion because at the end it has this little stuff there, onions have these hairy things there, roots.

9. onions, because onions are soft and have stuff over them that you can take off easy and it looks like you can take that off easy, they make you cry, and onions have rings around them, and there are rings on the inside, because some of this is light and some of it is dark, and someone is trying to open it, and you can smell it.

10. banana, pumpkin, because of the skin and sometimes the stems have a

top on like this, I think it is a fruit bowl with some apples and some bananas, bananas and an orange, this looks like the top of two and this is round, sort of round, a fruit basket with bananas and peaches and oranges, celery and pumpkin stem because it looks like it, it's like a worm right between, that's an apple there and the worms coming out.

11. bananas and apples, bananas have skins like that and apples are shaped like that, and it is yellow, and has little brown dots like that, you can see the yellow and brown dots, because of the shape, 2nd grade apples because of the size and they're real red, there is two worms, they are bananas because they have dots.

12. carrot because of the shape, this part is the top and this part is the bottom, that's not all of it because I seen all little lines on the side of it, it's the colour because this would be the bottom because it's all white and when this goes up it gets little and littler, I think it's the shape because it's skinny and it has lines and looks like it's pretty dirty, it looks like it's a little bit of white like a little bit of white on carrots, I think they're carrots growing, carrots because carrots have white lines, it's kind of dirty and a little bit could be old carrots (turnips), could be the top of a hot dog but I doubt it.

13. carrots, it could be those weird white carrots (turnips), I can see four carrots, shaped and the leaves, the green stuff is cut off, there is just a little stem left, how come everything is on the grass?

14. shopping cart, fence, shopping cart because it has little steel things down and the shape, because fences have long things and I can see

a little bit of gold stuff behind, right behind there, I can see food behind the shopping cart, there is a whole bunch of shopping carts, because in the background you can see a whole bunch of these, the shopping cart, you can see one side, and another side, so that's another one, you can see right through to the other side, it's a bird cage because it's in the shape of one, it's a shopping cart because you can see that part going down like that in the background, it looks like sticks.

15. Safeway, it has an S, it's Christmas time too, it has a bell, a whole bunch of decorations, you can tell it's a store because it says frozen beans, frozen corn and stuff, frozen peas and frozen meat pies would suit, frozen dinners, frozen because everything else is frozen, except jams, jellies, spices, I think that's a heater, jams, jellies and pie fillings, jello cakes, shelves are under the empty one because the frozen stuff would be in the freezers, shelves here.

16. a spring from a tractor, a bicycle, a truck, all different parts of tool stuff, like springs, nuts and bolts, big steel bars, a wheel thing.

17. a seat off a car, a bicycle seat, because it is shaped like it, could be a motorcycle seat, a bicycle seat is not as big, it is a lot softer, a motorcycle is a bit different, a bicycle doesn't have shocks and everything, it doesn't have that spring, it is for the shocks, yes, it does, that might be to keep the chain on, so it won't fall off, to keep the bolt inside.

18. bicycle chain, tire, wheel spokes, chain, could be fixing the bicycle, it's a wheel because it's shaped like a wheel, and here's the chain and

here's the thing that keeps the spokes on, it looks like it's been neglected because the chain looks kind of rusted and it looks dirty and filthy, it needs a wash, it looks like he threw it on the ground because the wheel is like this, it is not up like that, looks like he threw it in the mud puddle and took it out, chain, there is a thing that is attached to the screw, the slot is to hold the wheel together, to hold this part right here so it won't fall off, this is different because that is the part that joins the two ends of the chain together, I think it is leaking because there is oil on the spokes.

19. that's a shoe because I can see the string and I can also see the lines that runners have, and the toe part, a shoe not a snake, I think it is a runner, shoes don't look like that, runners have white stuff there and shoes are a lot different, it has circles and a snake doesn't have circles.

20. it's a dirty oven, it's a window and it's just rained, the other side of the shoe, it could be a track that's got wet and dirty, a road, the lawn with the snow on it, dirt, water, dirty window, snow that's wet and dirty, you can see a little bit of glass, oh, yes, you can see, it goes that way and then it goes that way.

Set 2.

1. wood, wood that you can build with of course, it has this stuff, oil or something, it could be the side of a house or it could be a picnic table with seats that you put your stuff on, a house, I think it's pieces of wood cut because it has sliver things and has that thing with rings

around it, that thing (knot) is like when you get wood out of a tree, sometimes the tree has little things and looks like that, they call it knots, it is going down like stairs, the person who took it would be cock-eyed, but really it would be straight.

2. rocks because they are all glued together, they are square and all different shapes, and they look like they're all hard, it's in Stanley Park, near the waterfall, it could be a cliff, one of those cliffs up on the mountains, it looks like a house we know that has rocks, it could be a cave of a boogy woogy, it wouldn't be good for a sidewalk because people trip over them, in Ireland they have roads like that.

3. I think they are boulders because they look like giant rocks and I can see a hill and trees and it looks like the shape and I can also see bumps on it, I think it is a mountain with boulders on it, it could be a dyke, when you look down on it there's lots of rocks around, I think it could be by the ocean or a little beach or something, it could be the one that we live near by.

4. a boatyard, a place where people put their boats so that they don't have to take them home, I think it's at the water, Stanley Park, Horseshoe Bay because that's where those kind of boats go, ferryboats, I think it is a boatyard because I can see all boats and the thing where you get the thing where you can sail, these are flags, these are tug boats, fishing boats, they're masts, they're sailboats because I can see flags down there, sails.

5. boats with motors on catching fish, we have been there sometime, I can remember, near the sand dunes there is a place where you keep your boats.

6. cruiser ships, the front of it, army boat, a ferry, there's window in the front, and usually ferries have them and other boats usually don't have them, I think it's a USA boat because it looks like it, and has lots of stuff, they take things out like that (cranes), and that's how USA boats have them, it can't be a ferry boat because I think ferry boats are kind of black and blue, that is a freighter that carries things to different places, a ferry has got bigger stories and is wider and this one looks more like you can store things down below.

7. a house, a big house, a person with a big family, looks like an old house, the windows are very old, it could be a farmer's house because farmers have windows across like that, it could be your house maybe, it might be spring or winter, it could be Christmas because there are lights on the trees.

8. it is an older family house, it is a show house, it could be a family house with lots of things over it, it could say on the door--welcome every day, a mansion it's a big house, and it's priceless except for people who have a lot of money, if it's priceless, then money can't buy it, I think it's real older because there's a cellar down underneath the porch, it looks like a house in Vancouver.

9. a church, because I see grass on the window, and there is a name that says church, it could get Christians there, Anselms Crush.

10. a seaplane because it looks like a plane and it's got those things on it and you come along and your out of it, it would take four people, two could go in the front and four in the back, eight people could go in

there because there is eight windows, that could take about sixteen people, it could be landing because he's a little bit down in the water, that looks like my granpa's plane, he went down to there and he landed in the water and he landed there.

11. drainage pipe, helicopter thing that propellors it up, I think it is a helicopter thing because I seen helicopters on lots of movies, I see one big thing and two big things that make it move, a helicopter because on both sides it's smooth and on helicopters there's two things.

12. helicopter, a rescue helicopter, a police helicopter because their planes are blue and white, a rescue helicopter because that's where they put the person and there's a speaker where they can talk to the hospital.

13. they're both the same, except where they are turned, this one is facing this way and this one is facing this way, exactly the same, crashing each other, they are taken from different angles, no because if you took it from there you would have some movement, if they were different angles all you have to do is walk where the sun, like the bridge is dark there or something and the tail of it is that way and this tail is that way, all you have to do is look back on it, and this is backwards right there, I think they aren't the same ones because that one is bigger than that one, it could be taken from a different angle, because you can go from this side and then the other side looks different.

14. different helicopter, it didn't have that window thing and that same top, it's not the same helicopter because in the other two pictures I saw these things the same, that one's taller than that one, and that

one has a person in it, this one doesn't have a person in it and it's on the ground, this one is flying.

15. that's in Vancouver, two streets away from West 13th, one of them street light things, the light is green because it is on the bottom.

16. a couple of streets away from a shopping store in Vancouver, it's close to a bridge, that is on this picture because it's on that one right there, that's the same pole as that, no, it's not, because that's on that pole, and that's on that pole, I can remember seeing that car, it was in front of us, I can even tell by the licence plate, I think it's not the same one because you wouldn't have seen the car whatever.

17. Vancouver, near where they sell tickets to people, it's Seattle, it's England because it says England right there, it's in a city because there are lots of buildings, could be British Columbia.

18. Chinatown, Chinese printing, Vancouver, because Chinatown is in Vancouver, I went to Chinatown last Saturday and I saw this kind of writing there.

19. this is in Vancouver, downtown, East Hastings Street, there is a bit more traffic than here and there is busy streets, because there is lots of stairs and cars parked all around, in Richmond we don't have those kinds of things for buses and maybe it's in Vancouver.

20. the new Sears building that they made, it's just built because of this, they haven't put this in (scaffolding) that is where the elevator is, they haven't put the top on the building, you can tell it's being

destructed, you can almost say that but I think it's being build, it's new because when they tear an old building down it's already falling apart, the Sears building.

21. it's at a barn, because I can see the hay, it's being a building torn down, because buildings are sometimes torn down, it's being built because maybe they haven't finished it, it looks like an old torn down fire station, it looks like a sawdust in there or a pipe, I think it is still a building because there is a crane there.

Generalizations Derived from Characteristics of Responses From the Grade 3 Children

The researcher felt that eight characteristics of children's responses were worthy of note. They are as follows:

1. On several occasions the children mentioned that they could see colour in the black and white photographs.
2. The children were more inclined to hazard a guess when asked about each.
3. Children were more imaginative in their responses. In many cases they imagined far more than is in the photograph.
4. The children were more inclined to tell more than what was in the photographs, e.g., "onions, because onions are soft and have stuff over them that you can take off easy, they make you cry."
5. Children were limited in their vocabulary to explain what they wished to say, e.g., "shopping cart because it has little steel things down and the shape, because fences have long things and I can see a little bit of gold stuff behind."

6. They were less inclined to notice detail in the photographs, e.g., the fact that a "ferry boat" had containers aboard.
7. The children had difficulty in explaining what characteristics or features help them identify the photographs, e.g., "it's a wheel because it's shaped like a wheel."
8. Children appeared limited in their general knowledge. Some could not tell the difference between sails and flags, tugboats and sailboats.

Teacher Testing

As the Kit was designed for use by the generalist classroom teacher, it was considered necessary to have it tested by such person before complete acceptance. One school was chosen from the Vancouver district and one grade 4 teacher was asked to test the Kit. The teacher was to test the images and report on:

(a) suitability for the designed use.

(b) ease of use by the teacher, e.g., any prerequisite training needed.

(c) other possible benefits, e.g., visual thinking.

The following report was given by the classroom teacher in response to this request. This report appears to give added support to the suitability of the visuals.

General

- I took 2 separate groups for each set.
- In each there were at least 2 kids who obviously didn't have a clue on most of them.

- Generally very responsive--many comments on 'that was fun' as they left.
- Stimulated great discussions. I had to cut them off--unfortunately.
- The 'brightest' kids responded more, showed more interest--especially the second set.
- Generally more interest in the second set.
- At first the children were disappointed--I picked separate groups.
- I'd find them useful for many things:
  - (i) developing visual perception, the children were really interested in what 'clues' they hadn't noticed.
  - (ii) creative writing
  - (iii) discussions--especially Socials.
- Generally they tended to pick up clues on first set more--probably had to look closer to identify.
- Generally more observant--some of them surprised me.
- I would like to have time to do this on a one-to-one basis.

Implications for Teaching

Based on the aforementioned teaching and testing, the evidence so far suggests that the visuals would be suitable for use with children at the grade 3, 4 and 5 levels. No judgement can realistically be made as to whether they would be of use in higher or lower grades than those mentioned although it is expected that they would be beneficial. It should be expected that responses would differ from level to level and that other differences would naturally occur. This researcher feels that because of the versatility of the Kit, each set would be equally suitable

at each level. One underlying factor governing possible success is the degree of realization by the teacher of what she is teaching and why. These images in the Kits are not a curriculum in themselves, but serve as an aid to the implementation of a curriculum. It is anticipated that a classroom teacher would be able to obtain equally positive results as those previously outlined.

Summary

Previous testing had suggested reportable differences in overall thinking and perception between grade 4 and grade 5. Large differences were revealed in degree of perception and children's critical thinking. Further testing was carried out with grade 3, 4 and 5 children, with responses tabulated and analysed. Grade 4 children with previous perceptual training showed differences in quality of response. Results from classroom testing gave positive indications on the suitability of the Visual Stimuli Kit for classroom use.

Chapter 5

CONCLUSION AND DISCUSSION OF THE FINDINGS

The development of the two sets of visuals is a result of a concentrated study by the investigator in the area of visual perception. Images were carefully chosen and field tested for responses indicative of visual perception or awareness. All responses were analysed and the differences noted. Although several visuals produced more interest and response than did others in the set, it is considered that all can make contributions to the process of learning. Each is arranged in sequence to allow for a gradual build up of knowledge and understanding by the children. It is to be noted that the children tested were enthusiastic about the images, in particular those where there was an element of doubt as to its identity. It seemed that those appearing ambiguous were particularly suited for initial work with children with very little perceptual training. The order of presenting the visuals is considered to be important, particularly with children in early grades. Systematic questioning was deemed important, but not necessary. Although a list of questions was prepared for each photograph they were considered as a guide only. Questions asked would seem to depend entirely upon the nature of each individual classroom and as such, will vary greatly.

The grades 3, 4, and 5 were considered the most suitable levels for this type of work. Mary Rouse considers children at levels 4 and 5 ready for such experiences.[32]

> Fourth Grade
> Since the child is beginning to be able to see objects from a single point of view, he ought to be given practice in this kind of 'seeing'.

> Games must be devised that demand the finding of different kinds of natural or man-made objects, the intense observation of their details and the ordering of these details.
>
> Fifth Grade
> He can be given practice in all kinds of behaviours already suggested, but perhaps at slightly high levels and in more depth.

It does appear that this Visual Stimuli Kit would be suitable to develop the experiences mentioned.

In reference to CEMREL (Central Midwestern Regional Educational Laboratory) learning packages it has been stated: "The content in a system of packages, however, must not only reflect the nature of the disciplines in what is to be taught but also the attributes of the student."[33]

Based on the findings being reported here, it is reasonable to conclude that this Visual Stimuli Kit does account for the CEMREL requirements and that as such the Kit would be most beneficial to elementary classroom teachers in the development of children's awareness of the environment and visual perception.

Implications for Further Research

The Visual Stimuli Kit provides the teacher with one means of teaching perceptual awareness in the elementary classroom. Images were selected from the children's environment. These had particular interest to children from Vancouver. One aspect worthy of future research might be based on an investigation into responses from children who come from an environment which has no mountains and seas. In the earlier grades, children mentioned colour in their descriptions of black and white prints.

Further inquiry might be made into the realm of colour perception. Colour represents a complex field of study, one which needs investigation

if a complete study of perception is to be undertaken.

Summary

The images in the Visual Stimuli Kit are introductory only and as such leave the door open for the development of more complex images which take into account various types of visual awareness and discrimination in children of all ranges and abilities. The writer believes that such materials are not only desirable but necessary with the increasing emphasis in art education being placed on the need to develop perceptual skills.

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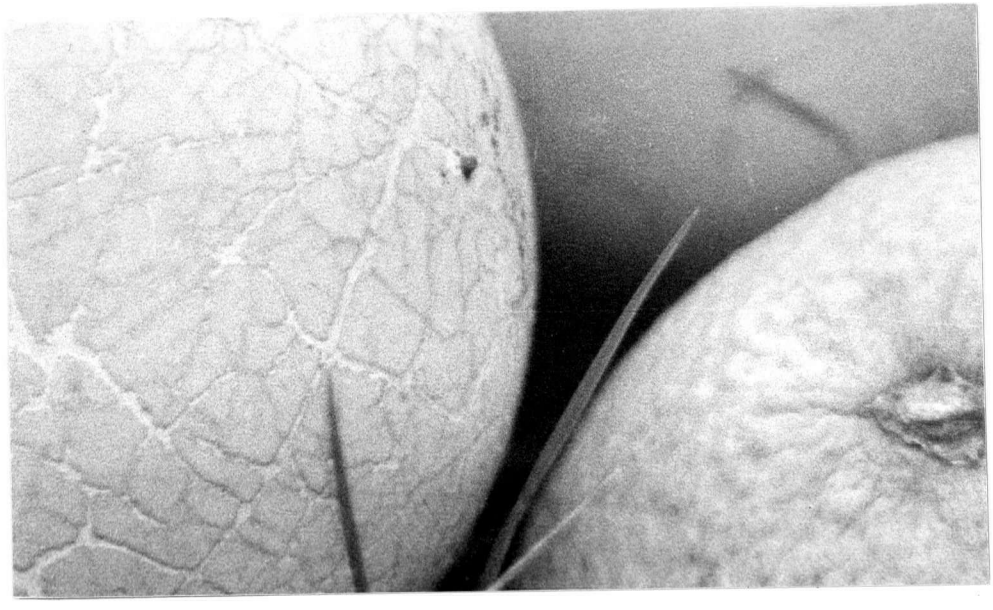
Appendix I

Following are photographs of the visuals used. Each visual measured 11" x 14". Each was numbered and listed. On the back of each are the suggested questions. Each set is individually packaged and each visual mounted on good quality card.



Set 1.

A 1. Portion of an orange, portion of a child's ball, grass.

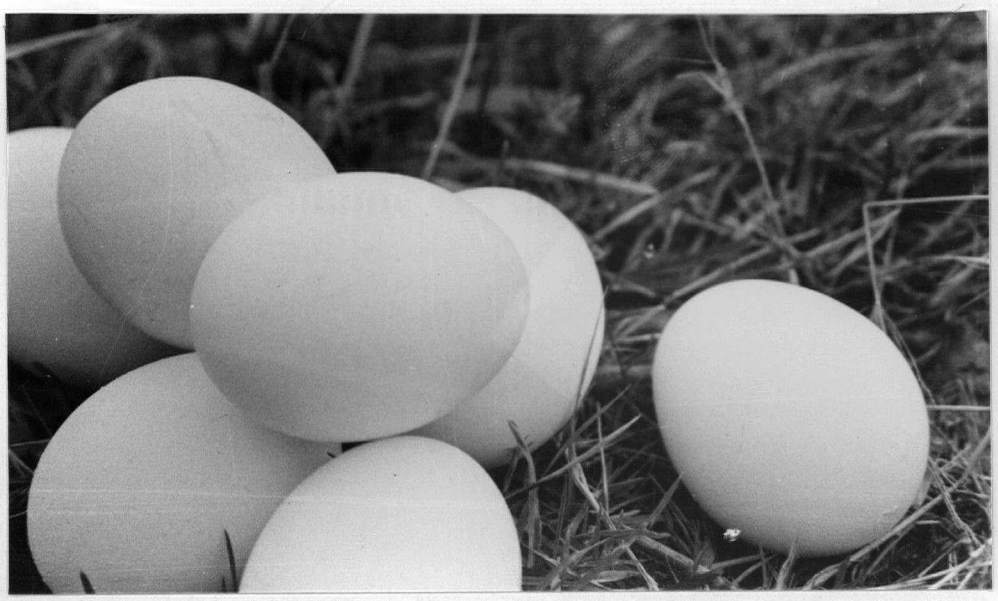
Questions: What might this be? What do we have here? What shape can you see? Can you see any cracks? Can you see any texture? What could the long things be? How could you describe the long things? Do you think one is a golf ball? Why or why not?

A 2. Orange and two toy balls.

Questions: What might this be? What can we say about the shape of each? Why would there be a line around the shape at the rear?

A 3. Close up view of eggs.

Questions: What might these be? What shape would they be? What could they be sitting on? Are the shapes oval like a football or football field? Can you think of a name that means 'in front of'?



A 4. Seven eggs on grass.

Questions: What do you think these are? How can you tell they are eggs? Which egg is the closest to the camera? How can you tell? Is there an egg that does not have overlapping? Which one? How many eggs are there? Could there be more? Why or why not?

A 5. Portion of a lemon.

Questions: What might this be? What makes you think that it is a lemon/orange? Could it be anything else?

A 6. A group of lemons on grass.

Questions: What do you think these could be? How can you tell they are lemons? What else is in the picture? How could we describe the surface of the lemons? Is photograph 5 part of this photograph? What section is the same? Are they all lemons? Why is one lemon blurry?

A 7. A tap or water faucet.

Questions: What could this be? What can you see that gives you clues? What else is in the picture? What word can we use that tells us that it looks like water?

A 8. Portion of an onion.

Questions: What might this be? Why do you think it is an onion? What could the white things be? How could you describe the outside surface? What word could we use to describe it? Could it be a rat? Why or why not?

A 9. Onions.

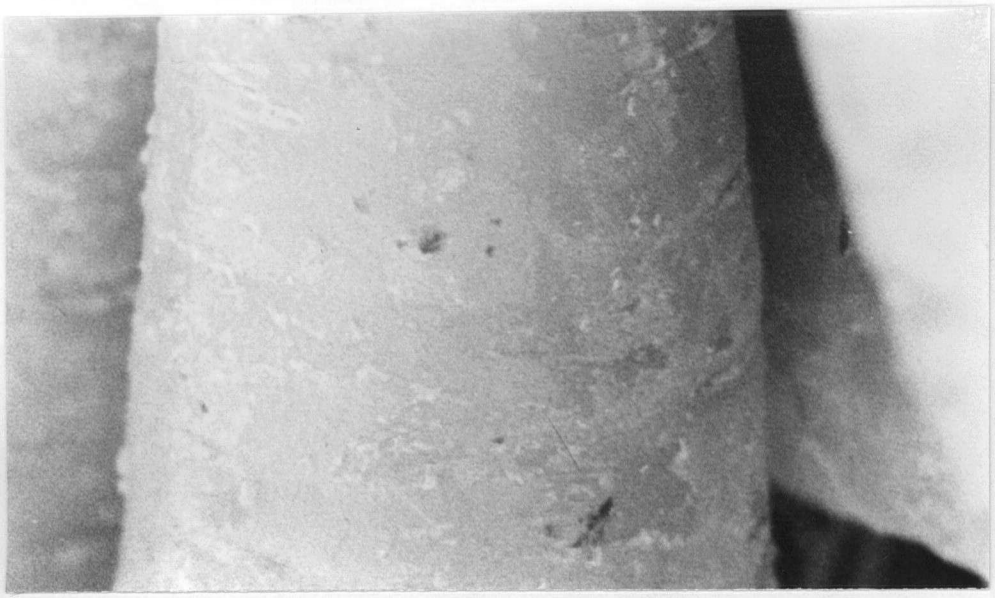
Questions: What are these? How can you tell that they are onions? Could they be anything else but onions? Is the large one an old onion or a young one?

A 10. Portion of a banana and apples.

Questions: What might this be? Can you see any prickles or hairs? What other elements or shapes can you see? What can you see in the background? Is it natural (something grown) or is it something somebody has made? What parts might give you a clue as to what it is?

A 11. Bananas and apples.

Questions: Can you identify what is in this picture? Can you tell whether the apples are 1st grade or 2nd grade? Do bananas always have spots?

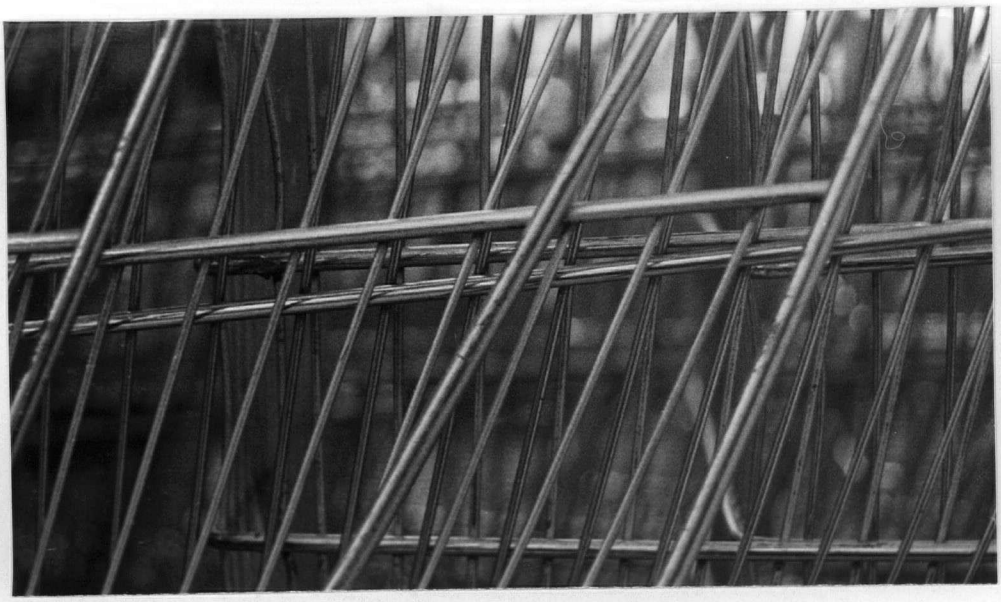


A 12. Portion of a carrot.

Questions: What might this be? What is it that gives you clues about its identity?

A 13. Four carrots.

Questions: What might these be? How many carrots can you see? Can you see any lines on the carrots? Where are they?

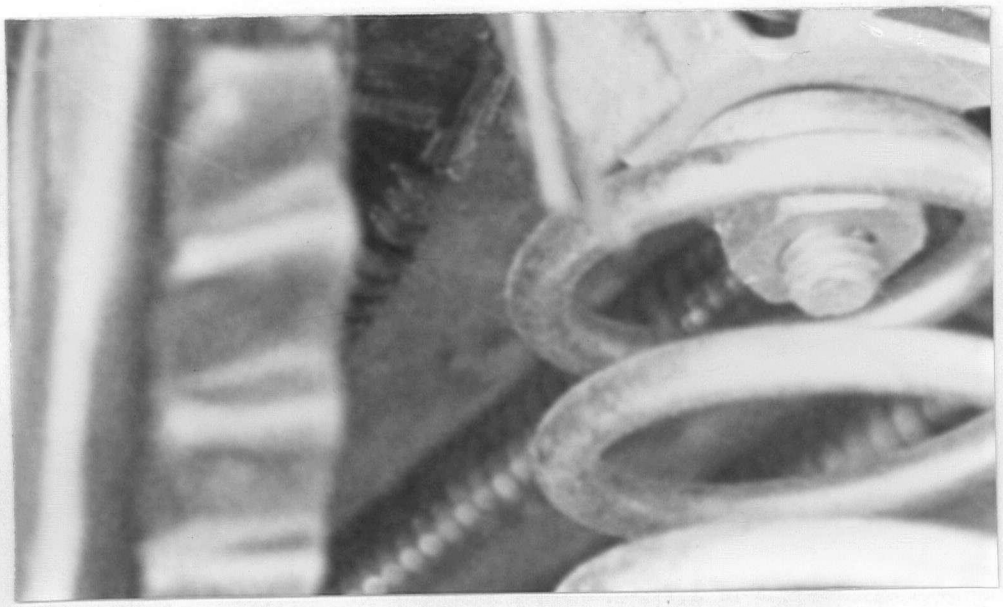


A 14. Side view of a Safeway shopping basket.

Questions: What could this be? Would it be wood or metal? What is in the background? Does the background help you identify it?

A 15. Interior of a Safeway store.

Questions: Where was this photograph taken? Why do you think it is a Safeway store? What season is it? How can you tell? What other label would fit suitably on the empty black space? Is it more likely to be shelves or freezers beneath the black notice board? Why?

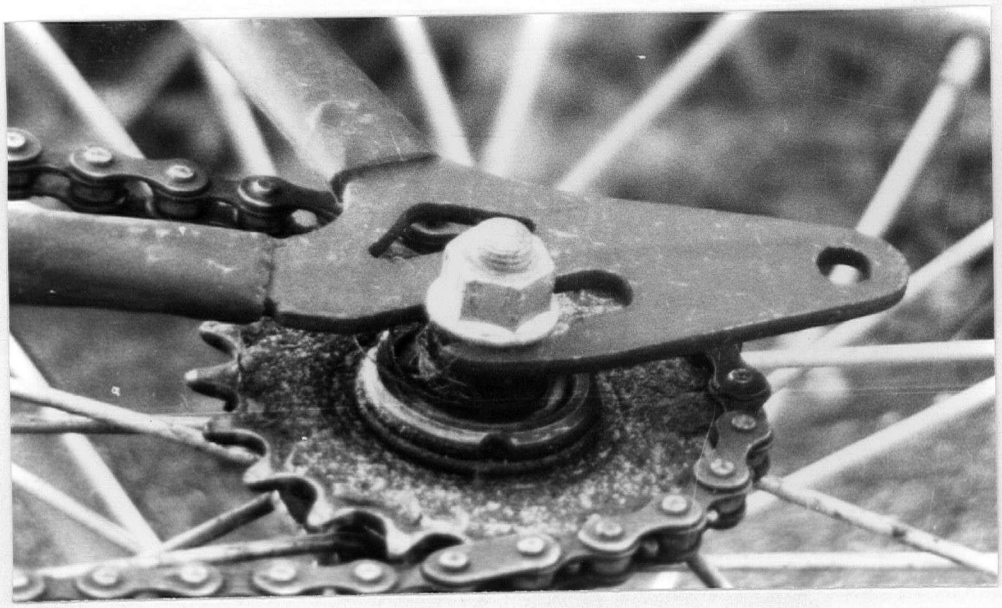


A 16. Portion of a bicycle seat.

Questions: What might this be? What features can you see?

A 17. A larger view of a bicycle seat.

Questions: What might this be? What features tell you that it is a bicycle seat? Why a bicycle seat and not a motorcycle seat? From what material would the seat be made?



A 18. The rear sprocket of a bicycle.

Questions: What could this be? Why couldn't it be a motorcycle? What is the slotted part for? Is there any part of the chain that is different from the rest? Why is one link different?

A 19. Portion of a shoe.

Questions: What could this be? How can you tell? Could it be a snake? What features tell us it is part of a shoe?

A 20. Three bricks with moss or lichen clinging to the surface.

Questions: What might this be? What different features can you see? Where are you likely to see this?

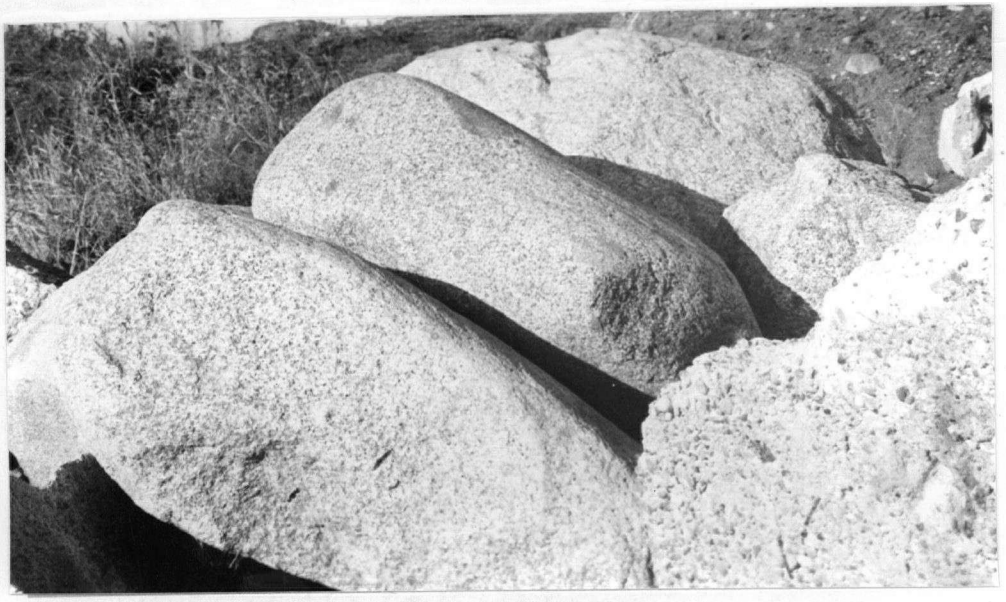
Set 2.

B 1. Rough cedar wall panelling from a storefront.

Questions: What could this be? How can you tell? What do you think the unusual part near the centre could be? What can you tell me about the surface? How are these pieces of wood placed? Would the wood be smooth or rough? Which board would you most likely get slivers (splinters) from if you rubbed your hand against it?

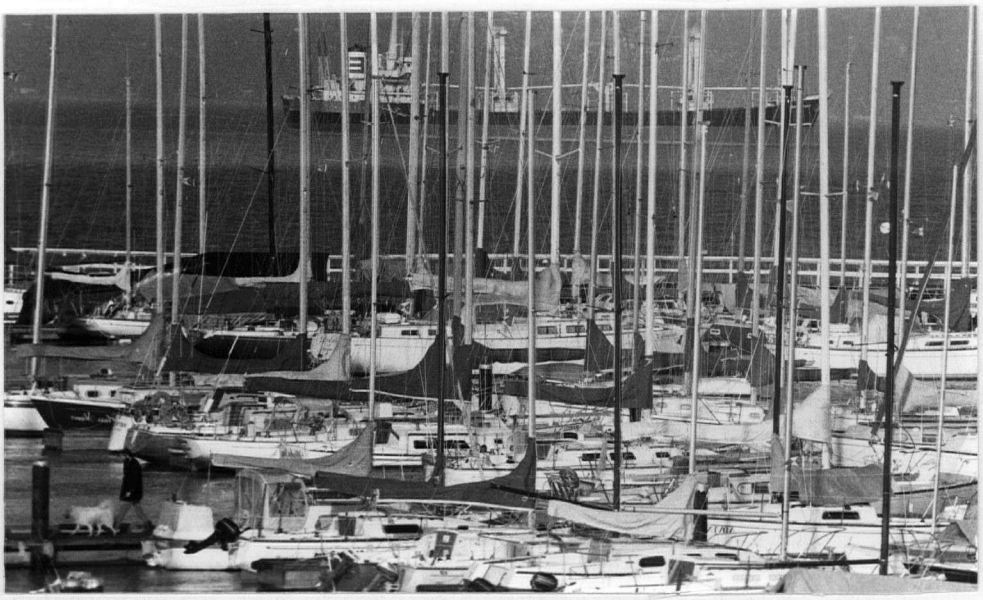
B 2. A rock wall from outside a Safeway store.

Questions: What might this be? Where might it be seen? Would it be formed naturally or placed there deliberately? What makes you think so? Would the surface be suitable for a roadway or sidewalk?



B 3. Boulders and concrete on the foreshore.

Questions: What might this be? Are they all rocks? What features tell us that the shape on the right side is concrete (cement)? Where might you see this scene?



B 4. Sailing boats with a freighter and North Vancouver in the background.

Questions: What type of boats would these be? How can you tell? Can you tell anything about where this was taken? How can you tell that they are not fishing boats?

B 5. Fishing boats.

Questions: What type of boats could these be? What features tell you that they are fishing boats? Would people live on these boats? How do they differ from sailboats?

B 6. Bow of a freighter in dock.

Questions: What type of ship could this be? How can you tell it is a very big boat? What would the round things on the ropes be made of? What could they be for?

B 7. A well kept large house taken at Christmas.

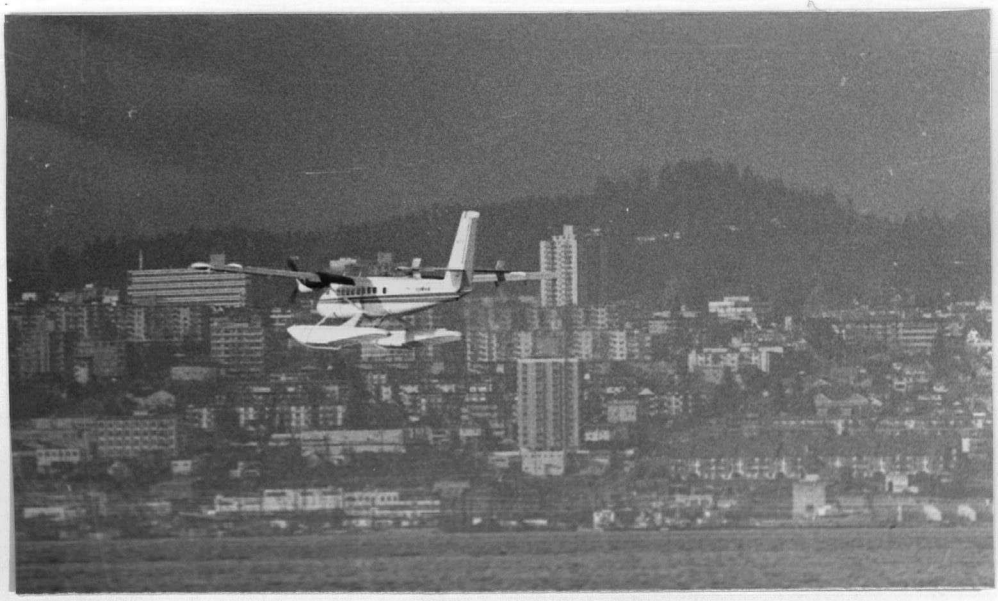
Questions: What can you see in this picture? What type of house could this be? What clues tell you so? What season could it be? What are the things on the trimmed shrubs? What type of person would live in a house like this?

B 8. Frontal view of a slightly older house.

Questions: What can you tell me about this house? What type of person would live in a house like this? Would it be a cloudy or a sunny day?

B 9. A church taken at Christmas.

Questions: What would this building be? If it didn't have a name could you still tell it is a church? What is behind the person taking the photograph? Can you see anything unusual on the fir tree in front of the building?



B 10. A seaplane taking off with North Vancouver in the background.

Questions: What type of plane do you think this could be? Why? How many persons would it carry? What can you tell about the mountain? Is it taking off or landing?

B 11. The main rotor of a helicopter.

Questions: What could this be? What tells you so? What mechanical parts can you see?

B 12. A helicopter.

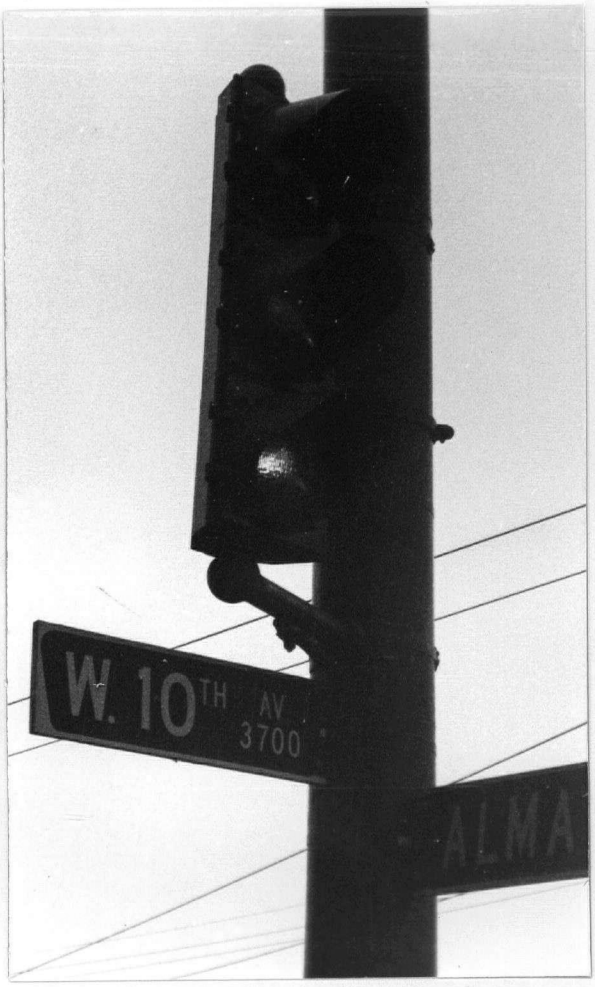
Questions: What can you tell me about this picture? What could it be used for? Is it moving? How can you tell?

B 13. The reverse image of photograph 12. A helicopter.

Questions: Compare this photograph to photograph 12. What is the difference? Is it the same plane? Explain the reason for Vancouver Island being spelt backwards in this photograph.

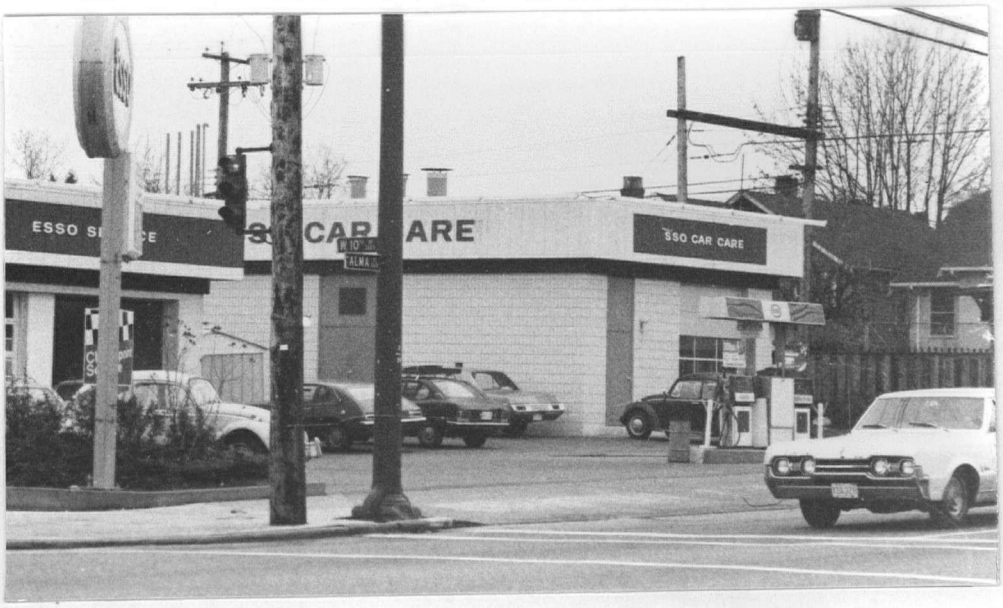
B 14. Different helicopter taking off.

Questions: Is this the same helicopter as the previous ones shown? How can you tell? Is it flying or standing still?



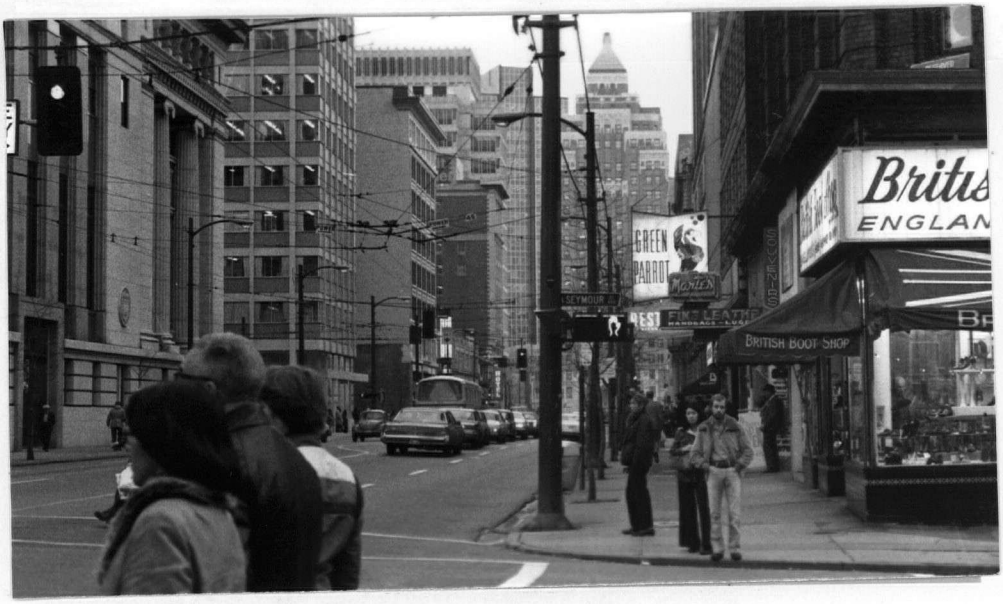
B 15. A lamp post at the corner of West 10th and Alma with the traffic lights showing green.

Questions: What can you see in this picture? Where is this post situated? What colour is the light?



B 16. A street corner, corner of Alma and West 10th.

Questions: Where is this situated? Can you see the pole that was in photograph 15. What colour does the traffic light show? How do you explain the fact that each pole says West 10th and Alma?

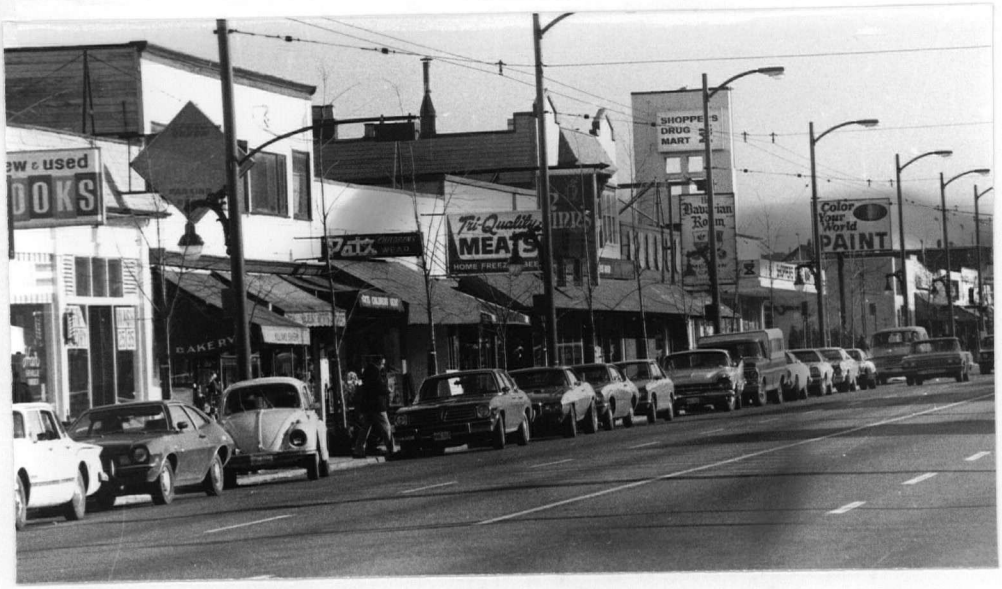


B 17. A city street, West Hastings and Seymour.

Questions: Is this photograph taken in the city, the suburbs, or the country? Why do you think so?

B 18. Section of Chinatown, Vancouver.

Questions: Where would this photograph be taken? Would it be a two way or a one way street?



B 19. A suburban street, West Broadway.

Questions: Would this be in the city, the country, or in the suburbs? Would trolley buses go by here?

B 20. Sears building in final stages of completion.

Questions: What type of building would this be? Is it being built or being pulled down? What makes you think so?

B 21. Side of a building being torn down.

Questions: What is happening to this building? How can you tell? What was the building made of? Is it built of the same material as the building in photograph 20?

Appendix II

Letter of explanation to accompany each set of visuals.

Visual Stimuli Teaching Kit.

These materials have been designed to aid the teacher in the development of visual perception in elementary school children.

It is my belief that many children are not aware of the objects that constitute their surroundings, and the events that constitute their experience.

Specifically, these visuals have been designed to develop in the children the ability to discriminate visual features in their immediate environment. It should also develop their interest in the environment.

Two sets have been developed. Images have been arranged in sequence. Children should be encouraged to look closely at visual features (shapes, lines, textures) that will aid in the identification of the image.

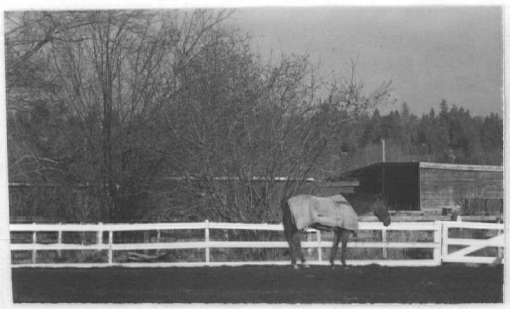
It is expected that the teacher would vary the type of questions according to what is expected from the lesson. A list of questions is included only as a guideline.

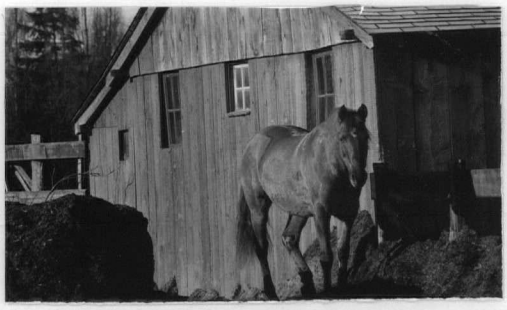
It is hoped that, with wise use these visuals will develop children's visual perception as they were designed.

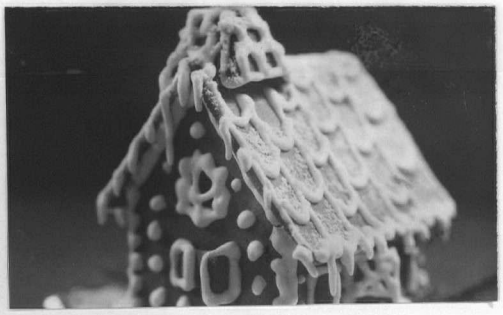
James A. Williamson

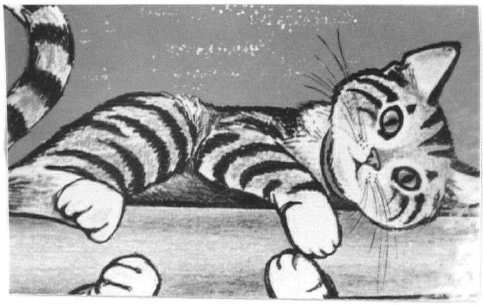
Appendix III

Following are copies of rejected visuals.







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