

CHILD IMAGES OF ATTACHMENT FIGURES AND SELF

by

TIM HEAD

B.A., The University of British Columbia, 1982

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

(Department of Mathematics and Science Education)

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

September 1991

© Tim Head, 1991

In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of September 24, 1991

The University of British Columbia
Vancouver, Canada

Date September 24, 1991

Abstract: Child Attachment-Related Conceptualizations
of Parents, Teacher and Self; Forced Choice Visual
Representations Along a Permitting/Blocking Access Dimension

Twenty-three 5 to 7-year-old boys were shown drawings depicting themselves with their mother, father or main teacher in one of 8 attachment-related situations. Subjects were primarily Caucasian and lived in a suburban neighbourhood in Richmond, B.C. They were asked to select from 4 response categories the caregiver "most like" their mom, dad or main teacher. Response categories were generated from attachment theory. Individual and group inner image profiles were developed from the 552 selections. The variable "situation", but not the variable "caregiver", was determined by loglinear analysis to be significant beyond the .05 level ($p = .035$). The childrens' selections were demonstrated to be relevant and non-haphazard within and across response categories. The analyses provide significant support for the validity of the response categories and the centrality of the underlying dimension of "permitting/blocking access".

In addition, the study supports the notion of viewing main female teachers after 9 or 10 months with a child - as an attachment figure to that child. A fairly generalized meta-structure of internal working models is suggested by this group profile. Finally, this study gives support to the notion of situational specificity of caregiver response

under conditions of child attachment behavioural system
activation.

Table of Contents

Abstract.....	ii
List of Tables.....	vi
List of Figures.....	vii
Acknowledgements.....	ix

Chapter 1:

Statement of Problem.....	1
Rationale and Purpose of Study:	
General Considerations.....	3
Phenomenological Considerations.....	6
Developmental Considerations.....	8
Inclusion of Teachers as Attachment Figures...	11
Background and Theoretical Basis of Problem.....	16

Chapter 2:

Literature Review: Overview.....	21
Important Dimensions of Attachment Theory.....	23
Cognitive and Affective Bias.....	26
Internal Working Models.....	35

Chapter 3:

Methodology: Overview.....	48
Rationale for Design.....	50
The Subjects.....	54
The Interview Situation.....	57
The Permitting/Blocking Access Inventory.....	59
The Friendliness/Unfriendliness Inventory.....	61
The Pilot Study.....	62

Chapter 4:

Results: Overview.....	64
Pilot Study Results.....	67
Study Results:	
Main Effects and Interactions Between Variables.....	68
Confidence Intervals.....	70
Internal Consistency.....	76
Analyses Based on a Subject's Choice of a Response Category One or More Times.....	79
Comparison of the Permitting/Blocking Access and Friendliness/Unfriendliness Inventories...	81
Subcategories Within the Ignoring Blocking Access Response Category.....	87
Test for Understanding.....	88
<u>Chapter 5:</u>	
Discussion: Interpretation of Cognitive, Affective or Response Bias in the Results.....	89
General Discussion.....	94
Conclusion.....	103
Future Research Directions.....	105
References.....	107
Appendices:	
Appendix A: Drawings for Permitting/Blocking Access Inventory.....	120
Appendix B: Drawings for Friendliness/ Unfriendliness Inventory.....	217

List of Tables

Table 1: The Permitting/Blocking Access Inventory: Loglinear analysis.....	69
Table 2: Confidence levels based on 23 subjects.....	70
Table 3: Confidence levels based on 22 subjects.....	73
Table 4: Summarized data for all subjects in both inventories.....	74
Table 5: Anova results within response categories.....	75
Table 6: Probabilities for response categories.....	79
Table 7: Significance of the distribution across response categories for the full version of the primary measure.....	82
Table 8: Significance of the distribution across response categories for a reduced version of the primary measure.....	83
Table 9: Significance of the distributions across response categories for a reduced version and the full version of the secondary measure.....	84
Table 10: Summary of data from Friendliness/ Unfriendliness Inventory.....	86
Table 11: Situation by caregiver by response.....	100

List of Figures

Figure 1: Comparison of Permitting/Blocking Inventory and Friendliness/Unfriendliness Inventory for all caregivers and others, and for mother, father only.....	81b
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----

Acknowledgements

I would like to extend my gratitude and appreciation to my advisor, Kip Anastasiou, whose considerable support helped make this research study possible. I am also grateful to Peggy Koopman and John Allen for their warm support, suggestions and encouragement. Other contributors whom I would like to acknowledge and thank are Stan Kita, Jim Enns, and Walter Boldt. Finally, while the art work speaks for itself, I gratefully acknowledge Barbara Clayden for her considerable artistic contribution.

Chapter 1: Statement of Problem

This is an exploratory study designed to give a profile of attachment-related inner images or expectations for a group of 23 five to seven year-old boys. The subjects' school and homes are located in a suburban city near a large metropolitan area in B.C., Canada.

More specifically, this study examines aspects of the childrens' internal working models involving their expectations of the attachment-related responses (permitting or blocking access) of three adults to various child situations of distress and proximity seeking behaviour. Each child is asked to indicate the card which is "most like" his mother, father or main teacher in a series of forced choice tasks. A similar aspect of their internal working models that is measured, involves the childrens' expectations of their own responses to adult attachment figure proximity seeking behaviour. In this case each child is asked to indicate which card is "most like" himself in a series of forced choice tasks.

In a secondary measure children are given a series of forced choices designed to assess their tendencies to perceive siblings, peers and other significant adults as "unfriendly" or "friendly". This measure is assessed independently of visually represented child (or adult) situations of distress and proximity seeking. It is a more

general measure, yet still assumed to measure an aspect of the childrens' working models.

The group profile is analyzed in order to provide empirical support for the validity of the response categories, in particular when utilized phenomenologically. The underlying dimension of these response categories (permitting/blocking access) is determined from theory (Main, Kaplan, and Cassidy, 1985).

Rationale and Purpose of Study:

General Considerations

This is an exploratory study of certain aspects of childrens' inner working models. It is being conducted in order to determine if childrens' expectations of self and three caregivers can be represented visually along a certain important dimension. As this was an exploratory study, it is useful to describe its rationale within the context of associated past and recommended future research directions.

Both the theoretical work on attachment and internal working models by Bowlby (1969, 1973, 1980) and the empirical work done by many others (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Main & Cassidy, 1988; Sroufe, 1983) strongly suggest a significant amount of stability in behavioural patterns from infancy onwards. Bowlby (1973) suggests that some beliefs and expectations actually have a certain power to be self-fulfilling. Such elements of the internal working model are theoretically implicated by definition in the maintenance of important aspects of behavioural stability. Empirically, in the attachment research however, there is a dearth of evidence pointing to any particular potentially self-fulfilling expectations amongst children, except as can be inferred from their behaviour. Crittenden (1988b) states that a child's relationship to his mother is probably best conceptualized

in terms of his expectations but notes the difficulties in devising any procedure that directly assesses expectations.

This research attempts to show that such internal images or expectations, as aspects of the inner working model, can begin to be systematically and visually represented by demonstrating that this group of subjects shows certain pattern(s) of homogeneity in their combined selections from the forced choice categories. In addition, this research attempts to show that all the response categories generated for the study are relevant to the subjects. These forced choice categories were generated from estimates of some of the important types of responses that a caregiver might make (and vice-versa) to a child in some common stressful and proximity seeking situations.

A rationale for this type of study hinges in particular on the quality of the forced-choice categories generated. Main et al., (1985) stated that a caregiver can either permit or block access to a child and that access can be permitted consistently or inconsistently. The permitting/blocking access inventory was designed to hinge on the distinction inherent in its name. The four response categories include one for "permitting access" (1), two for "blocking access" (3, 4), and one roughly midway on the dimension of permitting/ blocking access (2). The dimension of consistency of access is at best only partially tapped in the response categories through the provision of eight different situations in which each of the four access

possibilities may be selected. It is likely that within certain limits at least, different childrens' images or expectations of their caregivers may be quite different even given the same level of caregiver consistency or the same given different levels of consistency. Caspi and Elder's (1988) 4-generation longitudinal study conducted between 1928 and 1972 certainly supports this point. Using a hierarchical regression analysis they demonstrated that "early family experience" did nothing to predict "problem adult behaviour" above and beyond "childhood problem behaviour". In other words, "early family experience" is not necessarily the best predictor of the direction a person's life will go. Clearly then, there is necessarily a higher level of probability that this study accurately measures childrens' images or expectations of their caregivers than that it measures how they came to be, or in particular the exact quantity and quality of their attachment-related experiences.

Even though this study is not designed to demonstrate the nature of childrens' experiences, it may be important to tap a wide variety of experiences. Given that a significant proportion of all 5 to 7 year-olds have been maltreated (Berger, Knutson, Mehm, & Perkins, 1988; Pelton, 1977; Straus, 1979), it is considered useful that the response categories tap some of the images or expectations that a maltreated child might be expected to develop. The "ignoring blocking access" category taps an issue clearly

central in cases of neglect (see Crittenden, 1988a). The "angry blocking access" category similarly taps an issue clearly central in cases of physical abuse (see Crittenden, 1988a), and perhaps also in cases of neglect (Burgess & Conger, 1978). Sexual abuse, as considered distinctly from physical abuse and neglect, is not directly tapped by these particular response categories. This area aside, "ignoring" and "angry blocking access" categories are considered to be useful in spanning "normal" and maltreated subjects' internal images or expectations. For that matter, the "permitting" and "midway on access" categories are considered to be equally useful for this purpose. In future studies of this nature, the differences in degree of perceived "ignoring", "angry", "permitting" or "midway on access" caregiver response for maltreated versus non-maltreated populations is probably best tapped by differences in the frequencies of selection for these four access categories.

Phenomenological Considerations

In a review of 20-30 years of literature concerning the effects of child-training methods on later personality development Dubin and Dubin (1964) noted "widespread failure even to realise that it is not only parental behaviour to which the child responds but also his perception of parental behaviour" (p. 809). The child's perception of parental

behaviour is hypothesized to be the missing element in understanding his response to parental behaviour. "The one-to-one relation between parental behaviour and child personality has yet to be demonstrated " (p.810). The success of attachment researchers, (e.g., Ainsworth et al., 1978; Crittenden, 1988a, 1988b; Main & Stadtman, 1981) in demonstrating significant correlations between patterns of parental and child behaviour does not negate the Dubins' point. Furthermore, this is acknowledged within the theory of the inner working model (Bowlby, 1969, 1973, 1980). We may now have improved predictive power between patterns of paternal behaviour and patterns of infant/child behaviours, between patterns of infant behaviour and child psychopathology for males (Lewis, Feiring, McGuffog, & Jaskir, 1984), or between "problem child behaviour" and "problem adult behaviour" (Caspi & Elder, 1988). However, there is still a great deal of variance left unexplained with respect to all of these relationships.

As well, Hinde (1982) suggests that what was observed in the Strange Situation Procedure (Ainsworth & Wittig, 1969) was not the caregiver/child relationship itself but rather the infant's view of it, and at a particular point in time. And in another reference to Bowlby, Main et al. (1985) noted that the Strange Situation reflects a primitive internal working model at a particular point in time. Recently, some attachment researchers have incorporated attempts to directly tap childrens' perspectives into the

essential design of their studies (Cassidy, 1988; Cassidy & Kobak, 1988; Main, Kaplan & Cassidy, 1985). Cassidy (1988) notes "problems associated with the attempt to make observable that which is internal and unseen" (p.123) not the least being the validity of self-reports. Main et al. (1985) note that if childrens' representations of attachment are constructed out of critical events (such as separations from an attachment figure) then representations of childrens' responses to such events are of interest. Finally, Crittenden (1988a) states the need not only to find ways to change the experience of abusing parents and abused children but also to find ways to change their conceptualizations of their experience. Indeed, this study is designed to explore how 5 to 7-year-old children from one suburban neighbourhood conceptualize some aspects of their experiences with caregivers, relatives and peers.

Developmental Considerations

The 5 to 7-year-old age group was chosen for this study in part because it was thought to be the youngest age group generally capable of contributing useful internal information through this format. Indeed, a small but significant minority of the 5-year-olds did not appear to understand or to be capable of following the directions sufficiently. However, at this age it is probable that the use of the forced-choice categories is preferable to more

loosely structured interviews because of the relatively low level of linguistic and cognitive capacity to give useful, interpretable descriptions of themselves and others. Certainly, categorization of their responses is enhanced. At the same time the children themselves are still being solicited for their own views.

Regarding the upper limit of this age range, one of Piaget's best validated findings involves the great difficulty that children under 7 have in seeing anything from the point of view of anybody else (Piaget, 1924; Piaget & Inhelder, 1948). In the present study this characteristic, called "egocentrism", might be expected to minimize the subjects' tendency to try to respond to a perceived expectation of the interviewer. This form of bias then may significantly increase for groups of children older than 7.

Rholes and Ruble (1984) suggest on the basis of two of their own studies and one by Heller and Berndt (1981) that 5 and 6-year-old children could at best make only fairly limited generalizations about others across situations. After the age of 7 or 8 children were increasingly able to perceive broad consistencies in the behaviour of other children across different situations. The present study differs in that particular caregivers are depicted, and in attachment-related situations. In addition, subjects are not required to make generalizations across situations although we may observe generalizations in their images or

expectations across the different situations. These other studies do however point to further developmental changes after about the age of 7. The two Rholes and Ruble studies made an additional relevant point in that they found evidence against the likelihood that 5 to 7-year-olds' choices reflected a "positivity bias", that is, a complete preference for positive behaviours. Relative to 9 and 10-year-olds, they did not label the other childrens' behaviour as positively, though they were demonstrated to be capable of doing so. To summarize, although it is expected that an older group of children, relative to a younger group of children, could incorporate in their selections expectations of self and others potentially altered or affected by additional life experience - it is not clearly understood how their maturing developmental capacities would affect their response tendencies.

A possible advantage to choosing this age group involves the oft-expressed professional and scientific opinion that a child's personality is largely formed by the time he is 4 through 6-years-old. Attachment theorists don't tend to make this particular generalization, in part because a clear relation between the inner working model and the various personality constructs has yet to be made. In addition, there is still a great deal of debate regarding the relative extent to which various patterns of child behaviour demonstrate continuity or lability (e.g., Lamb, Thompson, Gardner, Charnov, & Estes, 1984; Thompson, Lamb, &

Estes, 1982). Probably the distinction between open and closed working models (see Chapter 2) referring to another continuum by which the inner working model can be described - is relevant here. It may be that by a certain average age a child has formed clear images or expectations regarding his attachment figures and self. However, these images or expectations (and others) may be more or they may be less open to mirroring any changes in life circumstances. This particular study does not attempt to measure the degree of openness/closedness of these childrens' working models. However, it is possible that the particular degree has been established, again more or less, by the age of 5 or so; that is another empirical question. In any event, this study attempts to capture 5 to 7-year-olds' current images or expectations, however labile they still might be at this general age and for each particular individual.

Inclusion of Teachers as Attachment Figures

Sroufe's (1983) largely descriptive study of 40 four-year-old preschoolers goes a long way to establish empirically that children can and do exhibit attachment behaviours towards their teachers. Teachers are tentatively considered to be "attachment figures" to children for the purpose of this study. Not uncommonly another in-home relative may take on significant attachment figure status. However, many children do not have older siblings or other

in-home relatives who might act as attachment figures. Partly for this reason, each child's most permanent teacher was selected to potentially represent a third attachment figure as depicted in the two study measures. Generally speaking, each teacher is considered to potentially act as a "secondary" (Ainsworth, 1982) attachment figure and each parent is considered to be a "principal" attachment figure.

It is hoped that this exploration of the inner working models of children will provide useful hints for therapists and school personnel. In Carl Rogers' introduction to Virginia Axline's book (1947), "Play Therapy", he writes that the book is, "on the surface, an account of the way in which a teacher has come to function as a therapist, to release the curative forces which exist within each individual" (p.vii). Axline believes that a teacher can make a very significant difference in a child's life-course. She writes,

the therapist-teacher is alert to recognize the feelings the child is expressing and reflects those feelings back to the child in such a manner that the child gains insight into his behaviour. This can be done to a great extent in any classroom situation if the teacher has an understanding of her pupils and an insight into human behaviour. If the therapeutic relationship has been established between pupil and teacher, many children may be helped to gain valuable insight into their problems before the problems become

so unwieldly that they create serious maladjustment.
(p.142)

Given Caspi and Elder's (1988) evidence that "childhood problem behaviour" mediates the relation between "early family experience" and "negative adult behaviour", it follows that "childhood problem behaviour" may represent a useful point of intervention in a potentially pathological life-course. School probably represents the most significant stage between early negative family experience on the one hand, and trouble with the police and negative adult behaviour and parenting on the other. Teachers can become significant attachment figures acting to confirm or disrupt any negative and potentially self-fulfilling expectations of children. As Crittenden (1988a) and Bowlby (1988) have pointed out, certain children need to spend time with someone whose sensitive responsiveness and communication of positive feelings towards and about them act to allow corresponding positive changes in their inner working model. Similarly, Summit (1984) claims, "the teacher who relates effectively to a child may become for that child an anchor of self-endorsement and a prototype on which to build other successful relationships." (p.33)

However, alternatively, "the child may tend to see the teacher as an extension of the parent. . . and the teacher may feel in the student an inappropriate fear and distrust

accompanied by terrible pressure to perform and abject expectation of failure. . ." (p.33).

Aber, Allen, Carlson and Cicchetti (1989) go so far as to say that for older children attachment to primary caregivers should perhaps be subsumed to other stage-specific aspects of the attachment system, for example, their ability to establish positive relations with novel adults. If so, this provides further reason to explore the relationship between children and their teachers, both its actualities and its potentialities. Bowlby (1973) also considered this a type of relationship worthy of exploration and challenged researchers to establish empirically that children showed actual attachment behaviours towards teachers.

Finally, Cohn (1990) has conducted what is probably the most significant exploration of the relationship between child-parent attachment and the relationship of the child to peers and teachers in the school setting since the Sroufe (1983) study. Cohn found that 6-year-old boys, but not girls, with an insecure attachment to their mothers are significantly more likely to receive lower sociometric ratings and higher ratings on aggressiveness and behaviour problems in the school. Non-attachment studies similarly provide evidence that "non-maltreated" children growing up under a parenting style characterized by irritability, explosiveness and threats develop an aggressive style that is often generalized from the family to peers and teachers

in the school (Patterson, DeBaryshe, & Ramsey, 1989; Simons, Whitbeck, Conger, & Wu Chyi-In, 1991). Clearly, the child's own perceptions, images or expectations of his teacher qua attachment figure is an area of child development worthy of study.

The particular variables in this study have been chosen to maximize the potential contributions to understanding and insight into child behaviour for teachers in their capacity as attachment figures and teacher-therapists. Some of the most basic dimensions of attachment theory have been utilized for this purpose namely, child distress states in their capacity as activators of the attachment behavioural system, proximity seeking behaviour, attachment figure as "secure base" from which to explore the world, attachment figure behaviour with respect to permitting or blocking access to the child, and internal working models as elucidated in childrens' images or expectations of adult attachment behaviour.

Background, Development and Theoretical Basis of the Problem

This study follows in the tradition established by Sroufe (1983) of regarding the teacher as a potential attachment figure.

It also relies heavily on a single clarifying statement made by Main et al., (1985) that there are basically only three ways that an attachment figure can respond to child proximity seeking behaviour, by permitting access consistently, or inconsistently, or by blocking access.

The two measures of this study are designed to attempt to tap the internal images or expectations of non-maltreated, physically abused and/or neglected children. The maltreated and non-maltreated categories are not considered to be completely distinct within the subject group. This idea is supported in two quite different ways. First, a certain significant proportion of this 5 to 7-year-old group can be expected to have been maltreated. In this case that conclusion is based on statistics for large populations of children. For example, Straus (1979) in a study of 1146 families, found that more than 14% of American children, 3 to 17, received abusive violence an average of 10.5 times a year in the form of "punching, kicking, biting, hitting with an object, 'beating up', or 'using a gun'". In addition, the most conservative estimates of the annual incidence of physical abuse of children range from 60,000 to 167,000 in the U.S. Neglect is believed to be more than

twice as frequent (Pelton, 1977). "Maltreated" can mean maltreatment that has been substantiated by child protection agencies using one or another criteria. However, "maltreated" might also mean maltreatment that would be substantiated by the same criteria were all the facts known to a child protection agency. There are many complicated issues associated with the definition of maltreatment. Also a certain amount of maltreatment by any definition goes unreported.

The maltreated and non-maltreated categories are not considered to be distinct within the subject group from rather a different perspective as well. They are not completely distinct in terms of the types of experience (and consequent inner images or expectations) shared to one degree or another by some members of both categories.

Bowlby (1973) points out that there is a vast amount of intermediate experience between those groups of people with extremes of good and bad experience. Each person in all groups grow up with expectations to match his/her early experience. In the intermediate range,

provided the rules have been moderate and the sanctions mild and predictable, a person can still come confidently to believe that support will always be available when needed. But when rules have been strict and difficult to keep, and when sanctions on breaking them have been severe and especially when they have included threats to withdraw support, confidence is

likely to wilt. (p.209)

To illustrate further the commonalities in experience between groups of children labelled "maltreated" or "non-maltreated", George and Main (1979) note similarities between rejected children (without substantiated maltreatment) and their mothers on the one hand and physically abused children and their mothers on the other. Both groups of children respond with avoidance to the mother. Both groups of mothers engage in angry, rejecting behaviour and aversion to physical contact. Crittenden (1988a) describes abusive caregivers as providing generally needed care accompanied by excessive anger, harshness and/or hostility. Adequately reared children clearly share the experiences inherent in "generally needed care". Crittenden uses the same scales for four categories of maltreating mothers and one category of adequate mothers; all five categories of caregiver demonstrate one degree or another of the same types of behaviours as classified using the shared scales. The significant differences in degree do distinguish them however.

Berger's et al.'s (1988) study using the self-reports of 4695 college students demonstrated that 12% of them could identify actual physical injuries received during childhood. The great majority of them had never been designated as "physically abused". Furthermore, only 3% of the students considered themselves to have been "physically abused".

Clearly, however, this study suggests that a number of these students by the age of 7 had probably been exposed to harsh or angry caregiver behaviour.

Simons et al.'s (1991) study used parent and adolescent self-reports in an exploration of harsh physical punishment practices. They found that male adolescents were two to three times as likely to be physically punished as females. To be physically punished in the post-childhood years is considered to be a sign of harsher physical parenting practices. They do report, however, that although abusive parenting continues to be a significant problem, harsh parenting has declined considerably over the course of the last generation.

The point of these examples is towards the suggestion that the "maltreated" and "non-maltreated" categories may be reasonably conceived as opposite poles on a rough continuum (or set of continuums) of childhood experience. Rather than simply viewing children as maltreated or not it may well be more useful and less obfuscating to view them in terms of their own (phenomenological) range of care-receiving experiences along this continuum (or set of continuums). The use of the early A-B-C attachment classification system allowed many maltreated and semi-dysfunctional infants to be classified as "secure" (Spieker & Booth, 1988). This was thought to be a result of an initial primary focus on normal development (Crittenden, 1988b; Spieker & Booth, 1988). The situation is changing for the better in the strengthening

"marriage" of developmental psychology and psychopathology (Belsky & Nezworski, 1988; Sroufe, 1986). However, the determination of the status of "normal" or "abnormal", "maltreated" or "non-maltreated" will always inevitably remain to some extent a "political" decision, subject to locale, era and human decision-making bodies.

Chapter 2: Literature Review: Overview

This literature review is comprised in four sections. Some of the underlying dimensions of attachment theory are initially explained and described including certain patterns of behaviour, types of behavioural systems and behavioural strategies.

The second section describes the development of a "marriage" between developmental psychology and clinical psychology and psychiatry. This "marriage" is described within a context of the integration of disciplines. This section is included to provide further support and rationale for this study's inclusion of a large amount of material from areas of psychology and psychiatry.

The third section is a major section and a substantial review of the literature on perceptual distortion or exclusion as it relates to attachment. It is included in large part in order to help set limits on the interpretation of study results. This section also contains a review of the limited number of representational studies conducted with the same age group as in this representational study.

The final section lays out the theory of the inner or representational working model and some of the empirical studies which support and refine it. In addition to describing its key features and types of structures, examples are given of inner models held by various types of

adequate and maltreating populations. Continuity and change in the inner working model and consequently in behaviour is explored. This section concludes with a discussion of applications and future research directions. This is the section most obviously relevant to this study of important aspects of 5 to 7-year-old boys' inner models, that is, their inner images or expectations of attachment figures and self.

Important Dimensions of Attachment Theory

Organized patterns of attachment behaviour may be distinguished from separate, discrete attachment behaviours. Such discrete behaviours, eg. "smiling", "crying" or "touching", have been traced through early development by frequency counts and generally without regard to their contextual meaning. It is clear that the same behaviour, for example, "smiling", may lose its common (prosocial) meaning in certain contexts such as in response to the distress of another. In other cases large numbers of ordinarily dissimilar behaviours may be subsumed together according to some meaningful principle. Similarly, it may be less significant (initially) to measure the strength or weakness of different relationships than to measure the qualitative differences in relationships; or it may be less pertinent to look at the severity of maladaptation in development or caregiving than to look at the "style" or manner of caregiving or of meeting developmental issues (Ainsworth, 1982; Crittenden, 1988b; Sroufe, 1983).

There are four types of behavioural systems activated by the Strange Situation Procedure and by the various other assessment tools of attachment research. The attachment behavioural system is studied in interplay with the wariness/fear, affiliation/sociability, and exploration behavioural systems. Single behaviours that could be classified in two systems, e.g., moving toward mother

(attachment) while moving away from a stranger (wariness) or the sequential activation of more than one system, e.g., offering an object to the stranger (affiliative) then immediately running to mother (attachment) are necessarily considered in the contexts of ongoing activity and environment (Schneider-Rosen, Braunwalk, Carlson & Cicchetti, 1985).

Each behavioural system is activated by a unique set of conditions. If one is activated at low intensity (e.g., attachment) it is likely that another will be activated at high intensity (eg. exploration), and this will determine the behaviour that is observed. The strange or novel may activate the exploratory system or at a higher intensity (or in the case of a different child), the fear/wariness system, with likely intensified attachment behaviour (Ainsworth, 1982).

Corresponding to the child's attachment behavioural system is the parental attachment behavioural system. Both systems serve proximity maintenance and protection and nurturance of the child (Bowlby, 1969).

Crittenden (1988b) describes four universal dimensions of attachment theory, initially set out by Ainsworth (1978). Behaviours that act to bring about proximity or maintain contact correct attachment partners are two fairly straightforward ones. More complex are "avoidance" and "resistance". "Avoidance", involves the avoidance of the attachment figure or of other cues likely to activate the

attachment behavioural system. "Resistance" involves a heightening of responsiveness on the part of the child to attachment eliciting cues and to the attachment figure - to the point of anger and difficulty in calming down (Carlson, Cicchetti, Barnett, & Braunwald, 1989). These four dimensions or behavioural strategies are thought to underlie the entire attachment classification system with one possible addition (Crittenden, 1988b, 1989). This is the "controlling" behavioural strategy identified in a population of 6-year-olds by Main and Cassidy (1988). These children, whose behaviour had been very disorganized in infancy, were observed to control their caregivers in either a punitive or a caregiving fashion.

Cognitive and Affective Bias

Disorders of attachment are functions of the child/parent relationship that result in the child's inability to experience the parent as emotionally available and as a reliable protector from external danger or internal distress (Lieberman & Pawl, 1988). A secure attachment involves the child's feeling safe and undistressed while with the parent and for short but increasing periods of time while away from the parent. In the meantime, feelings of longing and the desire to restore proximity and contact are part and parcel of a secure attachment (Bowlby, 1969; Ainsworth et al., 1978). A secure attachment to mother hinges on the following four factors: mother's sensitivity to signals, her timing of interventions, the child's experience of predictableness with respect to the results of his social initiatives, and the extent to which his social initiatives are successful in helping establish a reciprocal exchange with her (Bowlby, 1969).

When a child is met by rejection on the part of the attachment figure, a conflict is created for the child (Main & Stadtman, 1981). The child is to some extent torn between attachment behaviour and withdrawal. Bowlby (1973) initially discussed this conflict in terms of violence or threats rather than rejection per se on the part of the attachment figure. He noted the likeliness of infants, human and non-human, to cling to the threatening or hostile attachment

figure. Whether the attachment figure's behaviour is one of physical aggression or a milder form of physical or emotional rejection, the child will to some degree find himself torn between the opposite responses of approach and withdrawal.

There is pain associated with both physical aggression and rejection. However, when the aggressing or rejecting individual is also the attachment figure there is an additional component of pain in the form of anger and anxiety associated with the conflict between attachment behaviour and withdrawal. Children who avoid the attachment figure and other cues likely to activate the attachment behavioural system are thought to be deactivating the painful consciousness of this conflict (Cassidy & Kobak, 1988; Main & Stadtman, 1981). An avoidant conflict may be central to the cognitive and behavioural responses of many maltreated children and non-maltreated children (Crittenden, 1988a).

As early as 1979, George and Main recognized the similarity between normal rejected toddlers' and physically abused toddlers' avoidance of their caregivers. They shared additional characteristics as well. When they were not expressing avoidant behaviour they were both significantly more aggressive and significantly less empathic to the distress of others. These characteristics are similar to those of avoidant caregivers. That is, avoidant caregivers were demonstrated to be significantly more physically

rejecting and insensitive with infants during the first year of life when infants are thought to most need physical comforting (Blehar, Ainsworth & Main, unpub. ms.; Marvin, 1977); in addition physically rejecting mothers were more likely to handle their infants roughly during free play (Main & Stadtman, 1981). This "avoidant-aggressive syndrome" (George & Main, 1979) is particularly interesting with regard to physical contact because aversion to physical contact and rough physical handling seem to be such divergent behaviours (Main & Stadtman, 1981; Older, 1981).

Cassidy and Kobak (1988) suggest that avoidance is a significant factor in the interpretation of research findings as well as in measurement construction and research design. At the representational level, as opposed to the behavioural level, subjects commonly use two defensive strategies, "deactivation of the attachment system" and "idealization". Avoidance is central to both strategies. In a study of 52 six-year-old children Cassidy (1988) found that those who were classified as avoidant in infancy were more likely to receive perfect scores on self-esteem, suggesting less than accurate self-reporting and specifically, "idealization". It was, however, not possible to distinguish between children previously classified as secure or avoidant on the basis of perfect scoring alone since about a third of secure children also received perfect scores. The remaining secure children described themselves positively, with some flaws. In a doll exercise designed to

tap their views of self in relationship to attachment figures, the 6-year-olds previously classified as avoidant were less likely to acknowledge the importance of their relationship to their mothers, to express affection or to value and accept themselves. Kaplan and Main (1985) found that 6-year-old children previously classified as avoidant, when asked to draw family figures, drew tense or rigid figures with little individuality. These figures were unable to reach out to others since they were drawn without arms. Facial expressions were often stereotyped with overemphasized smiles suggesting the masking of negative affect. Overall, the drawings strongly suggested the deactivation of the attachment behavioural system as expressed at the representational level. In addition, these same children were shown a series of photographs depicting separations between child and mother (Hansburg Separation Anxiety Test adapted for age by Klagsbrun and Bowlby, 1976). Those 6-year-olds classified as avoidant in infancy were largely unable to suggest the use of others as sources of comfort and support or to suggest adaptive coping strategies in general. They were, however, able to acknowledge distress with respect to the situations depicted. Cassidy and Kobak conclude that the influence of experimental observation on behaviour, self-reports and on the various forms of self-related representations - may vary with attachment organization.

Based largely on clinical experience, Bowlby (1973, 1980) claims that idealization of the parent (as opposed to idealization of the self) is a common phenomenon involving the exclusion from awareness of the model of the bad unloving parent. Some causes include parental ridiculing of the child's security-seeking (attachment) behaviors, their reinterpreting rejection as love or motivated by love, and other forms of disavowing or denying the child's anxious, angry or loving feelings towards the parent. Given such circumstances, a model of the bad, unloving parent is still thought to exist below consciousness as a "subordinate" model and to continue to influence the individual. One mechanism by which conflicting inner models may occur simultaneously involves the classification of "actual" experience with the attachment figure into many cross-referenced "schemata" (Mandler, 1979) at different hierarchical levels of memory (Bretherton, Ridgeway, & Cassidy, 1990; Schank, 1982). Affective and cognitive information is reprocessed, partitioned, cross-indexed and summarized in a variety of ways resulting in the various internal schemata which simulate reality. Memories excluded at the episodic level, that is, episodic memories excluded from consciousness, may nevertheless be included in schemata at other levels thus influencing a person's thinking and behaviour.

Bowlby (1973) describes "cognitive development" as consisting of the steps undergone from simple stimulus response to using rules to combine information from

perception and memory. By means of these rules the individual can predict events in the world more or less accurately and plan and respond accordingly. An individual's "cognitive bias", along similar lines of reasoning, refers to the speed, completeness and accuracy of the processing of information. These related concepts describe the functioning of the inner working model.

"The storage of images of parents and self is almost certain to be of at least two distinct types" (Bowlby, 1973, p.62). They may be stored in/as "episodic" or "semantic" memory (Tulving, 1972). Episodic memory commonly retains its perceptual properties while fitting integrally into the rememberer's sense of his personal identity or life history. Semantic memory, on the other hand, is comprised of information stored in the form of generalizations. These generalizations can vary considerably in the degree to which they are "constructed" versus "taken in whole" from others.

In a study of 40 adult couples Main et al. (1985) demonstrated a strong correlation between idealization of the adults' parents and rejection by those parents during childhood. Crittenden's studies (1985, 1988a) of parent-child dyads is strongly suggestive of one possible pathway to idealization of the parent. From as early as 12 months of age some maltreated infants were demonstrated to "cooperate" with their mothers in a rigid manner while inhibiting direct expressions of negative affect towards the mother (Crittenden, 1988b). They were described as

"compulsively compliant" as opposed to "cooperative" towards the mother (Crittenden & DiLalla, 1988). These mothers were found to be significantly more controlling and interfering and significantly less sensitive and responsive than other mothers. The inhibition of negative affect in those situations in which it would be appropriately expressed is expected to put these children at a disadvantage in terms of actually knowing how they do feel. In addition, many physically abusive parents (Azar, Robinson, Hekimian, & Twentyman, 1984; Azar & Rohrbeck, 1986; Crittenden, 1988a) and perhaps neglecting parents as well (Azar et al., 1984) have an unusually strong need to be viewed as "good" parents. Given patterns of compulsively compliant behaviour, inhibited negative affect and controlling parents who perhaps need to be viewed as near-perfect parents, it is not difficult to imagine some significant number of these children "learning" to idealize their parents.

Reider and Cicchetti (1989) report different forms of information processing deficits or, "cognitive control strategies", in a study of 72 four to nine-year-old children. Maltreated children versus non-maltreated children and boys in general versus girls in general are more likely to pay attention to distracting stimuli when they are aggressive in nature (i.e., images of guns and knives). When neutral stimuli are in the foreground and aggressive stimuli are in the background maltreated children of both genders and boys in general are significantly more

likely to attend to i.e., "the sharpening to" background stimuli. When aggressive and neutral stimuli were reversed with respect to background and foreground, maltreated children are able to assimilate the aggressive stimuli more accurately; non-maltreated children of both genders were less likely to attend to, ie. "the levelling to", the foreground aggressive stimuli. Reider and Cicchetti suggest that the maltreated child, by turning towards aggressive cues and as a result away from non-aggressive ones, may feel better prepared to deal with adversity. Given Simons et al.'s (1991) finding that adolescent boys are two to three times more likely than adolescent girls to be physically, often harshly, punished by their parents it would not seem unlikely that roughly the same might apply for these 4 to 9-year-old boys and girls. In other words, in addition to maltreated children of both genders, boys in general may, by sharpening to aggressive cues, feel better prepared to deal with adversity. Furthermore, if it could be shown that boys are subject to significantly greater amounts of physical aggression from persons other than their parents (e.g., peers, teachers) this explanation would be supported further. Of course, other explanations will no doubt contribute to a fuller understanding of this phenomenon.

Reider's and Cicchetti's concepts of "sharpening" and "levelling" to stimuli seem to correspond closely to Bowlby's concepts of "perceptual vigilance" and "perceptual defence" (Bowlby, 1973). One difference perhaps applies to

the greater potential for affective neutrality in the applications of the former pair of terms. While "sharpening" and "levelling" apply descriptively with respect to the perceiver's relation to strong affective stimuli, they don't necessarily apply in this manner. For example, if a child's levelling to non-aggressive stimuli occurs because of his sharpening to aggressive stimuli, then the application of the concept of "levelling" to his perception appears to be a more neutral one.

The application of the concept of "levelling" to describe the maltreated child's tendency to insulate himself from non-aggressive stimuli is consistent with results from another study. Aber and Allen (1987) demonstrated the maltreated child relative to the non-maltreated child to have less "effectance motivation". By this it is meant that less initiative was observed in the seeking out or mastery of new situations.

Internal Working Models

Bowlby, a psychoanalyst, drew heavily from psychoanalytic theories of object relations (Bretherton et al., 1990). His theory of attachment is narrower, in that it doesn't focus on all social relationships; it is also more general in that it explains both healthy and pathological development. Perhaps its greatest break from psychoanalytic theory was in its claim that the attachment system is a distinct motivational system, (Bretherton, 1985). Bowlby was inspired by Craik (1943) as well as by Piaget (1952, 1954) to rework psychoanalytic concepts such as "introjection", "projection" and "representation" into the metaphor of "internal working models." Most importantly, such a metaphor is much more amenable to empirical investigation. Empirical evidence suggests that from age 1 infants use working models to forecast the probable future behaviour of the attachment figure (Izard, 1978; Sroufe, 1979). In addition, a very important study by Main and Cassidy (1988) demonstrated strong predictability from early security of attachment to aspects of the child's internal working model five years later.

Bowlby (1973) notes four key features of internal working models. The first involves the identities and expected locations of the attachment figures, and how they may be expected to respond. The next feature is the child's acceptability or lack of acceptability to the attachment

figures. The third is the use of internal working models in the perception of events, the forecasting of the future and the construction of plans. Finally, it is most significant whether the child feels confident or afraid regarding the availability of attachment figures - occasionally, frequently or most of the time. Such confidence, or lack of, depends on whether the attachment figures are judged to be the type of people who generally respond with support and protection and also whether the self is judged to be the type of person to whom others, particularly the attachment figures respond with same.

Although these two judgements are logically independent they are in practice completely intertwined. The models of attachment figures and self are likely to develop in complementary and mutually confirming manner (Bowlby, 1973). If he receives consistently responsive and sensitive behaviour with respect to his signals, he forms a representational model of the attachment figure as responsive and accessible and of himself as competent in eliciting her response and worthy of it. Or, alternatively, he may view himself as ineffective in obtaining her cooperation and as unworthy of it (Crittenden & Ainsworth, 1989). Bowlby (1973) puts it succinctly, "Whether a child or adult is in a state of security, anxiety or distress is determined in large part by the accessibility and responsiveness of his principal attachment figure." (p.23).

Although models of the principal attachment figures, generally the mother and then the father, are believed to be at first independent they eventually through some unknown process become more or less loosely integrated into a generalized model of attachment figures (Crittenden & Ainsworth, 1989). It is in terms of this generalized model, intricately intertwined with his model of self, that he perceives his entire social world. To varying degrees this continues throughout the life cycle. Towards an illustration of this point, one study by Crittenden and DiLalla (1988) made clinical observations of elementary school children involving unusually compliant and vigilant behaviours directed towards all adults, in addition to their abusing parents. They claimed that, at the age of 36 months, the children had adopted such behaviour as an adaptive strategy based on a flexible open model of relationships. Apparently between 36 months and 5 or 6 years the pattern had become rigid and unresponsive. In addition, Crittenden (1985), in a study of 121 maltreating and adequate caregivers found that physically abusing caregivers appear to have inner models related to ideas of "power" and "scarcity of needed resources" (both psychological and physical); their inner models involve them in coercive and non-reciprocal interactions to meet their own needs. For neglecting caregivers the idea of "scarcity" is combined with a sense of helplessness and despair. Only adequate caregivers are able to establish reciprocal

relationships or perceive others as willing and able to meet their needs and themselves as able to enlist their support. In another study, Pastor (1981) described 62 securely and insecurely attached toddlers in play situations with the mother and a peer. Secure toddlers were more sociable and positively oriented towards both mother and peer, as were their mothers more supportive and appropriately directive. Park and Waters (1989) tested 33 four-year-olds with their best friends in a 1-hour free play session. They found that secure-secure pairs were happier, more responsive and harmonious and less controlling than secure-insecure pairs.

In another empirical study, Slade (1987) describes the difference between "secure" and "insecure" children not as a difference in cognitive competencies per se but rather in the way cognitive competencies interact with social competence. Secure children are better able to enlist the support and "scaffolding" they need from the social environment. When children feel secure about the availability of attachment figures when needed - competence, self-reliance and knowledge about the world is fostered (Crittenden & Ainsworth, 1989). They are actually "freed to attend to other aspects of their lives" (p.445). Attachment behaviour is most intensely activated under stressful conditions evoking alarm or anxiety (Bowlby, 1973). If an attachment figure is sought without success or if there is doubt as to the availability of an attachment figure should one be needed the child will feel anxiety. This fear

response to inaccessability to mother can usefully be regarded as a basic adaptive response in terms of species survival. In fact, when the child's attachment system is active it elicits caregiving behaviour from the parent (Shaver, Hazan, & Bradshaw, 1988). Similarly an active parental caregiving system brings about behaviours that ease the child's distress. However, it is not only short-term anxiety but often anxious attachment that is brought about by the kinds of experiences that shake a child's confidence in the attachment figure's availability when needed (Bowlby, 1973).

The concepts of "continuity" and "change" are continually in tension and interplay in the empirically supported development of the theoretical notion of the internal working model. Both continuity and change must be acknowledged if the concept of the inner working model is to be a tenable one. Although the majority of attachment studies demonstrate continuity, more or less successfully, some studies similarly focus upon change in inner models and security of attachment (e.g., Gaensbauer & Harmon, 1982; Lamb et al., 1984; Thompson et al., 1982). At least two of these studies (Egeland & Farber, 1984; Vaughn, Egeland, & Sroufe, 1979) focussed upon the systematic nature of change in inner models and security of attachment.

Cassidy (1988), in the following, describes aspects of the "continuity" notion:

Although some of the pressure for continuity comes from

the environment, the working models organize and help mold that environment; by seeking particular kinds of people and by eliciting particular behaviours from them, the individual participates in the creation of his or her own environment. Additionally, Bowlby suggests that working models also trigger defensive processes that act to selectively exclude certain information from being processed and hence also contribute to continuity. (p.133)

Sroufe and Fleeson (1986) focus on "expectations" as carriers of continuity:

Expectations are the carriers of relationships. Carrying forward all of the specific behaviours and response chains from previous interactions would be an overwhelming task, but a limited set of expectations can generate countless behavioural reactions, flexibly employed in a variety of situations. One's orientation concerning others, one's expectations concerning their availability and likely responses, and what, in general terms, one can do (or cannot do) to increase the likelihood of familiar responses are strongly shaped by earlier relationships. (p.68)

Several home observation studies (Ainsworth et al., 1978; Belsky, Rovine, & Taylor, 1984; Grossmann, Grossmann, Spangler, Suess, & Unzer, 1985; Maslin & Bates, 1983)

support a connection between infants' (inferred) expectations of rejection or responsiveness - and their secure versus insecure behaviours. In at least one study (Blehar, Lieberman, & Ainsworth, 1977) other simultaneously taken infant characteristics failed to predict later security or insecurity. Sroufe (1983) tied security in infancy to self-esteem at the age of 4. Krazier, Fryer, & Miller (1988) gave evidence supporting a link between self-esteem and the ability to learn and use abuse-prevention skills. Bowlby (1973) and Epstein (1980) suggest the connection exists between self-esteem and expectations of self and others. However, to date one study (Cassidy, 1988) has tried but failed to support the claim.

Additional support for the idea that expectations are the carriers of relationships may be found in various non-attachment studies. For example, Dodge and Richards (1985) showed aggressive children to be biased towards interpreting agetates' behaviour as hostile or malicious. Waas (1988) compared two groups of low and high aggressive and rejected 3rd and 5th-grade boys to a group of non-rejected boys. When given no other social information, the aggressive groups made more hostile attributions of hypothetical peers depicted in drawings, and suggested more hostile responses. Parke and Slaby (1983) demonstrated that aggressive children were likely to come from homes in which discipline is harsh and punitive. Hart, Ladd, & Burleson (1990) found that 5 to 7-year-old children whose mothers were more power-assertive

in their disciplinary styles received lower peer ratings on being liked and were more likely to expect successful outcomes for unfriendly/assertive methods of resolving peer conflicts.

Ricks (1985) adapting Epstein's (1973, 1979, 1980) theory proposed that change in inner working models may occur through change within the same early relationships across time. Alternatively, it may occur through repeated experiences in other relationships or through especially strong emotional experience within a single relationship that disconfirms earlier postulates or models. Bretherton et al. (1990) point out that despite constraints a child's inner model must adapt as the attachment relationship develops. Needs that change with development must be reflected in revisions to the inner model. They also mention external factors or changes affecting the attachment relationship such as a developing chronic illness or loss of the parent's job which may require further revisions to the child's model. In addition, they note that cognitive development can be presumed to affect the developing complexity of the child's inner model.

Crittenden (1988a) proposed:

the goal of intervention with both compliant and acting out abused children must be to engage them in interaction with sensitively responsive adults soon enough and long enough that their patterns of

interaction (and resultant internal representational models) are not limited to those derived from interaction with their parents. (pp. 183-184)

Finally, Bowlby (1988) directly refers to one commonality between the manner in which models are formed and yet may also be changed:

There are, in fact, no more important communications between one human being and another than those expressed emotionally, and no information more vital for constructing and reconstructing working models of self and others than information about how each feels toward the other. (pp. 156-157)

Crittenden and Ainsworth (1989) point out the importance of having inner models not only accurately based on experience, but also open to new input and consequent adjustment. It is helpful to define some additional concepts in order to elaborate upon this point. Crittenden (1989) describes two additional dimensions of the inner working model, or inner "representational" model, delineated by Bowlby and largely neglected or misunderstood in the literature to-date. The extremes of these dimensions are "open" and "closed", "working" and non-working".

Open models are open to new interpretations and

predictions. Closed models interpret all behaviour in terms of the existing model. . . Working models allow cognitive manipulation of possible responses. Non-working models do not allow cognitive exploration of behavioural alternatives. (p.11)

Crittenden gives arguments based on her research for categorizing the models of abusive parents as "closed but working", neglecting parents as "closed and non-working", marginally-maltreating parents as "open but non-working" and adequate parents as "open and working".

Given that persons generally develop several attachment relationships, it is helpful to delineate the meta-structure of inner working models. The simplest one, which Crittenden suggests is associated with abusing mothers, is the "single internal representational model". Piaget's (1952) concept of "assimilation" is relevant here such that all relationships are interpreted in terms of the one model. More complex and consistent with reality are "multiple, unrelated internal representational models". Since there is one model for each relationship, the individuality of each relationship but not the coherency between them is recognized. Marginally-maltreating mothers are associated with this meta-structure. "Accommodation" of new information is the associated pattern described by Piaget. Most complex and consistent with reality is the "generalized model with differentiated relationship-specific submodels". Adequate mothers are associated with this meta-structure,

displaying both assimilation of information about relationships to the generalized model and accommodation of information to the specific submodels of relationships.

Finally, it will be useful to delineate the three best understood memory systems (Crittenden, 1989; Tulving 1979, 1985). "Procedural" memory is the first to develop and is captured in observations of infant behaviour in the Strange Situation. It consists of familiar behavioural routines carried out unconsciously and extensively throughout the life cycle. The "episodic" memory system is believed to develop mostly after the age of five (Fivush and Slackman, 1986), and consists of specific personal memories encoded visually or linguistically. They are more easily open to conscious review and revision than procedural memory. Finally, "semantic" memory is conscious, impersonal, generalized and undated (Crittenden, 1989; Tulving, 1989). It contains, among other things, generalizations about specific relationships and relationships in general. It consists of a person's own conclusions based on direct experience and on information received from others. Semantic memory is not evident until after the development of representation (Bretherton, 1984; Crittenden, 1989). The representation of self and others forms the context by which later experience is interpreted (Sroufe, 1986). Representation would appear to be a form of generalization.

The episodic and semantic memory systems (at least) contain both affective and factual knowledge. Such

knowledge may vary between the memory systems for each individual. Since either form of knowledge may be distorted, the associated memory system may be distorted accordingly. Each individual's inner working model is as distorted or accurate as its associated memory systems. In addition, it is probable that each memory system has its own inner working model. In any event, "individuals appear to differ in the extent to which they can co-ordinate different memory systems" and "individuals may have conscious access to all or only some of these memory systems" (Crittenden, 1989, pp. 8-9).

The above delineations associated with inner working models are conceptual tools which should prove instrumental for two types of research. "Normal" developmental change may be explored using assessments which clearly specify the levels of memory, and the dimensions and meta-structures of inner models being assessed. In addition, the relationships and the behavioural systems most relevant at the age levels being considered could be stated. To-date not many assessments in this general area have been directed primarily for the exploration of developmental change (Crittenden, 1989). These conceptual tools may help to change that.

The other relevant form of research is that directed towards intervention. Behavioural, cognitive and psychodynamic therapies may be viewed as working with procedural, semantic and episodic models primarily, in that

order. (Psychodynamic therapies may be viewed as directed towards uncovering episodic memories in order to revise semantic models.) The two topics which Crittenden describes as most in need of research and elaboration are "(a) the relation of the development of internal representational models to treatment of children of different ages and, (b) determination of the model(s) (ie. procedural, episodic, semantic or combination) with which to intervene" (p.27).

Chapter 3: Methodology

Overview

This research uses an exploratory design to map out a group profile in terms of subjects' inner images or conceptualizations of attachment figures in relation to self. The three or four response categories used in the primary measure are generated from theory (Bowlby, 1969, 1973, 1980; Bretherton et al., 1990) as opposed to statistical analyses such as cluster analysis. This study begins to gather empirical support for the validity of four response categories by demonstrating consistent patterns across categories, within categories and between inventories or measures.

The response categories constitute the dependent variable. The independent variables are "caregiver" and "situation" of which there are three and eight respectively in the main measure. Non-parametric statistics (loglinear) are used to determine the significance or insignificance of the independent variables across the response categories. Chi square statistics are used to illustrate additional patterns across response categories. Parametric statistics (anova) are used to demonstrate internal consistency within each of the individual response categories for the primary measure. Descriptive statistics are used to compare the two inventories. They are also used to show additional patterns within and across the response categories for the primary

measure. Finally, a short test of understanding of some of the basic visual and verbal concepts required for adequate participation is described.

This study does not attempt to label individual subjects in the study. Rather, the subjects are viewed collectively in order to determine if a consistent group profile exists. The particular patterns inherent in the group profile are used to investigate the validity of the response categories in the primary measure. Deviations from homogeneity within the group profile are based on a normal curve confidence interval criterion. It is not suggested that outliers that are defined as a result of the use this criterion have any diagnostic significance or validity. The criterion and the resulting outliers serve only to describe the group profile in terms of the relative proportions of homogeneity and non-homogeneity with respect to the dependent variable.

Rationale for Design

The establishment of the validity of the response categories generated by attachment theorists is a first step; it should precede their utilization in comparative experimental studies, preventive work with children, etc. The exploratory design of this study is organized around an investigation of the validity of its two measures. The primary measure is the Permitting/Blocking Access Inventory. The secondary measure is the Friendliness/Unfriendliness Inventory.

The main advantage of non-parametric over parametric statistics with regard to relationships across response categories in this case involves the extremely skewed nature of the distribution. The normal distribution requirement for the use of parametric statistics could not be met across response categories (although it could to a much greater degree within response categories). On the other hand, the repeated design manova statistics had the advantage over loglinear statistics in terms of the capacity to consider repeated measures. When repeated design manovas were attempted significant "within subjects effects" were found. These are most likely associated with the failure to meet the normal distribution requirements. Loglinear models are robust in the face of repeated measures however, and are frequently used in such cases.

The advantages of loglinear over ordinary chi square methods are several: the latter, according to Fienberg (1980):

- (a) confuses the marginal relationship between a pair of categorical variables with the relationship when other variables are present
- (b) does not allow for the simultaneous examination of these pairwise relationships,
- (c) ignores the possibility of three-factor and higher order interactions among the variables. (p.1)

In addition, loglinear models have the same modelling flexibility as analysis of variance and regression, and they are also interpretable (Christiansen, 1990).

Confidence intervals are determined for two purposes. In the first case they are used to demonstrate the degree to which the distributions within categories of the dependent variable are normal. This can provide the rationale for using anovas within response categories. That, in turn, allows the two halves of the group to be compared as a check for internal consistency. Confidence intervals have the additional purpose in this study of providing a reasonable criterion by which subjects can be sorted with regard to homogeneity or non-homogeneity of response. Without such a criterion the degree of homogeneity associated with this group profile could not be described. This criterion may of course have to be adjusted in the light of any future studies which contribute to establishing the validity of

these response categories or which describe other group profiles.

A simple but important means to describe the group profile and support the validity of the constructs involves determining the percentage of subjects who chose each response category one or more times. This is done for each of the four categories and for the two "blocking access" categories combined. These categories are further described by determining the probability that a category will be chosen one or more times when another category is known to have been chosen one or more times. This provides evidence of the degree of dependence or independence of the response categories to each other. This in turn, allows further speculation as to the interdependent nature of the categories.

The secondary measure, the Friendliness/Unfriendliness Inventory, has the advantage of allowing descriptions of greater numbers of individuals and groups of individuals from the subject's point of view. There is, however, no context or situation described in this measure. The depicted persons are merely illustrated in poses. This allows in effect a comparison across inventories of the relative descriptive value of varying context on the one hand and lack of context or situation on the other. At the same time, the subject's mother and father are depicted in both inventories, allowing for more precise comparisons of subject response.

Chi square statistics are used to demonstrate the significance levels of skewness across response categories in both inventories. Histograms provide visual evidence of the similarities and differences of the group distributions for the two inventories. Both loglinear and manova models were inadequate for this job due primarily to the insufficient number of responses called for on the secondary measure.

Seventeen of the 23 subjects were given a short test of understanding using submeasures of the secondary inventory. They were first asked to point to the drawing which is "the most friendly and nice". Their selection was then covered and they were asked to point to the drawing which is "the most angry and unfriendly". From this test it is decided whether or not subjects appear to have an adequate understanding of the verbal and visual concepts required to participate in the study.

Subjects

The subjects comprised one group of 23 five to seven-year old boys in kindergarten or grade one. At the time of the study there were eleven 5-year-olds, eight 6-year-olds and four 7-year-olds. The age range was 5 years, two months - to 7 years, 4 months with an average of 74 months. Most of the subjects are Caucasian. The 5 or 6 that are not Caucasian represent a number of ethnicities. All were attending school and living in a suburban neighbourhood in Richmond, B.C. for at least nine months prior to the study. Seventeen were living at the time with both parents; 6 were living only with their mothers and were visiting regularly with their fathers. All boys had one of six different female teachers as his main teacher for that school year.

Letters were sent to all 80 sets of parents with 5 to 7-year-old boys in kindergarten and grade one. It was offered to parents that any information gained about their children would be shared with them. Belsky and Nezworski (1988) found this basic courtesy to be a major motivator behind parental cooperation. Thirty sets of parents responded, 27 of them affirmatively. Of the 27, 26 requested to be informed about their sons' results after the study.

Of the 27 boys, 1 of the 5-year-olds appeared extremely uncomfortable and stated clearly that he did not want to

leave the classroom to go with the tester. None of the other boys objected in any noticeable way; in fact, most of them were clearly eager to go. Some data were taken for each of them. Three other five-year-olds clearly were not able or willing to cooperate adequately on the exercise and their data were not analyzed. The remaining 23 boys completed the entire exercise and their data were analyzed.

School personnel were not aware of official substantiation of abuse in the case of any of the 23 subjects. However, one of the boys (#22) was believed by the school to have been sexually abused by someone whose identity was not known to the school. This was reported to the school by the parents. Another boy (#23) was suspected by the school to have been either physically or sexually abused based on aspects of his behaviour. It was decided for two reasons to include these subjects in the analysis. The first is simply that the abuse was not substantiated. The second and more important reason is that this group was not systematically selected to represent a completely non-maltreated population.

All of the kindergarten and Grade 1 teachers at the school were female. Boys were selected over girls for no categorically imperative reason. The school was chosen because the district administrators, school principal and teachers were willing to participate. Additionally, the school and its environment were reasonably representative of a middle-income suburban neighbourhood. The school is

situated on a quiet traffic-regulated street with lots of green playing space and the principal and teachers were significantly friendly and relaxed. Such a physical and social environment could be expected to have a positive effect on the children.

The Interview Situation

All subjects were introduced to the interviewer by the principal or vice-principal in groups of 2 to 7 depending on the number of subjects in any particular classroom. The introduction was brief and informal with an opportunity provided for children to ask the interviewer questions and shake hands with him. Subjects were informed that they would be shown drawings and asked questions about them that they would be able to answer. They were told as well that there would be an opportunity to colour, do puzzles and/or play a game of cards, as they wished. Within a few days of introduction each child was individually picked up at his classroom and escorted by the interviewer to the vice-principal's office. (Neither the vice-principal nor her office was associated with a disciplinary role.) The office is about 10 by 12 and contains a desk and a child-size table and set of 3 chairs. Stuffed animals were placed on the table within reach of any child who might desire them for a greater sense of security. Only 2 or 3 children actually held them. The games mentioned above were placed slightly out of reach of the child until a break was required or the exercise was finished. Seventeen subjects finished the exercise without a break in 15 to 20 minutes. The rest asked for a break either with or without prompts from the interviewer. All subjects spent 15 to 25 minutes in relaxing activities before returning to their classrooms.

Prior to this some subjects appeared slightly fatigued and a few mentioned being tired. No subject at any time appeared or mentioned being distressed. There were no reports from teachers or the principal that the interview had disturbed any of the children.

Seventeen of the children returned briefly to the interviewing office within 10 days of initial interviewing for less than 5 minutes each. Children were given a short test to determine their degree of understanding of some of the earlier interviewing directions and also of their understanding of the facial expressions and body language inherent in the drawings. This test was not given prior to the study in order to avoid possible bias due to the formation of perceptual or cognitive sets formed as a result of testing.

The Permitting/Blocking Access Inventory

There are 8 submeasures of this task, one for each situation depicted. Each situation is depicted in a separate series of 4 drawings for each of "mother", "father" and "main teacher". Therefore each submeasure contains 12 drawings. The child is depicted in every drawing with one of the three caregivers. However, in 1 of the 8 submeasures the roles of "initiator" and "responder" are reversed between the child and each caregiver.

In each of the three series of each submeasure an adult (or in one case the child) is either permitting access (roughly means "responding sensitively"), blocking access, or is midway on the dimension of permitting/blocking access. In each case where the adult is blocking access, he/she is doing so in either an "ignoring" manner or in a more explicitly "unfriendly/aggressive" manner.

Each task is presented to the child in the following manner. "OK, Billy, imagine that in each picture this is you. It looks like you are sick in bed (alternatively "cut knee", etc.). I also want you to imagine, Billy, that this could be your dad (or mom or teacher) in each one of these pictures. Which one of the four is most-like your dad?" In the two or three instances when a child commented that the picture did not look like his mom or dad (specifically "no moustache" or "hair is too short") he was basically asked to be a "good pretender" and "pretend real hard". This

strategy seemed to take care of the problem at least insofar as no child persisted in mentioning the problem again and all children were then able to begin and complete the interview.

Similarly, in the case of the reversed submeasure ("self"), the task is presented in the following manner. "OK, Billy, imagine that in each picture this is your mom (or dad or teacher). It looks like she wants to give you a hug. I also want you to imagine, Billy, that this could be you in each of these pictures. Which one of these four pictures is most-like you?"

For 11 of the subjects the 4 drawings in each series were presented in order from most "permitting" to least "permitting" with the "angry blocking access" card coming last. For 12 of the subjects the most "permitting" card was switched with the "ignoring blocking access" card in a different 2 of the 3 series in each submeasure (counterbalancing).

Each presentation unit consisted of a series of 4 drawings, each on 8 1/2 by 11 pages and attached together to a single piece of bristol board.

The Friendliness/Unfriendliness Inventory

In this inventory, persons, groups of persons and buildings are depicted. Neither relationship situations nor the child himself are depicted. There are six + n submeasures of this task, where n = the number of older siblings plus the number of non-parental adults in the home. The submeasures shared by all subjects are "mother", "father", "teachers", "peers", "school" and "home".

Each submeasure involves the presentation of three drawings ranging from most friendly on the left to least friendly on the right. This inventory was presented in parts prior to, in the course of, and after the presentation of the Permitting/Blocking Access Inventory. The "mother", "father" and "peers" submeasures were presented first because they constituted simple tasks to get the children started. The submeasures for "siblings or other in-home relatives", "school" and "home" were considered to be less important and so were placed at the very end when child fatigue as a potential cause of bias might be greatest. The submeasure for "teachers" was presented between the middle and the end, after seven of the eight Permitting/Blocking Access submeasures.

The Pilot Study

The pilot study was conducted with 4 subjects. Five-year-olds were not included in order to create an opportunity to practice and refine the procedures with more mature subjects.

The pilot was approached with a readiness to alter procedures as necessary or appropriate (e.g., counterbalance aspects of the presentation of tasks to test for apparent forms of response bias, shorten and spread out the testing sessions). The pilot had the following purposes:

(a) To determine the optimal number of card tasks per session and the number of sessions required,

(b) To test the appropriateness of the age range for the card tasks,

(c) To reveal any problems in the procedures used to implement the card tasks,

(d) To reveal any problems which the children might have in understanding and responding to the directions,

(e) To provide an opportunity to practice presenting and interviewing skills and to detect any problems in the schedule and format,

(f) To reveal any difficulties which the interview situation might create with respect to the childrens' subjective feelings of stress or distress,

(g) To reveal any obvious or potential forms of response bias

(h) To otherwise determine the appropriateness and sensitivity of the instrument for the objectives of the study.

Chapter 4: Results

Overview

The Permitting/Blocking Access Inventory:

Loglinear analysis determined a significant relationship between the variable "situation" and the variable "response" beyond the .05 level. There was no significant three-way interaction between "response", "situation", and "caregiver". Loglinear analyses do not distinguish between dependent and independent variables so the significant interaction of "response" and "situation" is equivalent to a significant main effect for "situation". Similarly, there is no significant main effect for "caregiver" and no interaction effect between "situation" and "caregiver".

Confidence levels were determined for each of the four response categories as well as for the combined "blocking access" categories. Two of 23 subjects were outside of the 95% confidence interval for a normal distribution on the "permitting access" response category (1). At the 99% confidence level only one subject was excluded. These general results are identical to the general results for the "midway on access" response category (2). In addition, the subject excluded from the 99% confidence interval for categories 1 and 2 was the only subject excluded from the 95% and 99% confidence intervals for the "ignoring" (3) and

the combined "blocking access" (3-4) categories. The "angry blocking access" (4) category had three completely different subjects excluded from the 95% confidence interval, but none for the 99% confidence interval.

When the subject who was excluded from the 99% confidence interval for categories 1,2,3 and 3-4 - was left out of the analysis, one new subject and one previously mentioned subject became excluded at the 99% confidence intervals for three response categories. Thirteen percent (3 of 23) of subjects were classified as outliers.

Anovas were applied to the individual collapsed response categories (1,2 and 3-4). In each case the response category constituted the dependent variable. The independent variables were "caregiver", and "situation". The two groups ("halves") of subjects used in the anova had received counterbalanced presentations of the inventory. No significant differences were found between groups on each of the three analyses.

One hundred percent of subjects selected response category 1 one or more times. In addition, 57%, 22%, 22% and 30% selected response categories 2,3,4 and 3-4, respectively, one or more times. Seventy percent of subjects selected categories 2,3 or 4 one or more times. The knowledge that a subject chose category 1 one or more times does not provide additional information about the probability of a subject choosing any other response category one or more times. In this sense category 1 is

independent from the other categories. In the same sense categories 2 and 3 are positively dependent. Categories 2 and 4 are independent one way and negatively dependent the other. Categories 3 and 4 are positively dependent.

Highly significant chi squares were found for the distributions of responses across response categories.

The Friendliness/Unfriendliness Response Inventory

Highly significant chi squares were found for the distribution of responses across the three categories. They were skewed in the same direction as in the primary inventory. A loglinear analysis of the relationship between "caregiver" (mother and father only) and the two response variables from the two different inventories produced a near-significant Pearson chi square statistic ($p = .06$). Again the relative lack of data produced from this inventory probably affected the results of the analysis.

Pilot Study Results

It was determined in the pilot study that most of the procedures were unfolding as predicted. The children appeared to understand and to be able to follow the directions appropriately. It was decided to make two changes during the course of the pilot study. The "home" and "school" submeasures of the secondary inventory were determined to be inappropriate because the children tended to think that the bars were "blinds" or "curtains". Actually telling them "these are supposed to be bars" would of course defeat the purpose of the submeasure. In addition, it was decided that the order of the presentation of response categories should be counterbalanced among subjects. This was concluded on the basis of a heavy selection by the 4 subjects of the response category in the first position.

All data from the 4 pilot subjects were treated identically to the data from the other 19 subjects. The procedures followed for pilot and non-pilot subjects were in every way identical.

Study Results: Main Effects and Interactions Between Variables

There is a significant relationship between the variable "situation" and the variable "response" beyond the .05 level. There is no significant three-way interaction between "response", "situation", and "caregiver". There is no significant interaction between "response" and "caregiver". Loglinear analyses do not distinguish between dependent and independent variables so the significant interaction of "response" and "situation" is equivalent to a significant main effect for "situation". Similarly there is no significant main effect for "caregiver" and no interaction effect between "situation" and "caregiver" beyond the .05 level. No recoding was carried out in this analysis.

The Pearson chi square statistic for the full 4 response categories is not significant beyond the .05 level ($p = .092$). There is some doubt then that "situation" is significant for the full (1,2,3,4), though not the collapsed (1,2,3-4) model. This is the case because for small-sample distributions the Pearson chi square statistic is more accurate than the Likelihood Ratio chi square statistic (Fienberg, 1980). This is all the more true for samples such as the one in this study with many observed counts of "0" and "1".

Table 1

The Permitting/Blocking Access Inventory: Loglinear Analysis

response categories	variables	<u>df</u>	Likelihood Ratio chi square	Pearson chi square	p
1,2,3,4	response	83	81.0		.541
	caregiver	83		82.0	.509
	situation				
1,2,3-4	response	60	67.2		.242
	caregiver	60		64.0	.337
	situation				
1,2,3,4	response	21	33.4		.042*
	situation	21		29.9	.092
1,2,3-4	response	14	27.4		.017*
	situation	14		24.9	.035*
1,2,3,4	response	6	11.2		.080
	caregiver	6		11.4	.077
1,2,3-4	response	4	6.7		.149
	caregiver	4		6.5	.161

*
p < .05.

Confidence Levels

Confidence intervals are determined for each of the four response categories as well as for the combined "blocking access" categories. Two of 23 subjects are outside the 95% confidence interval for a normal distribution on the "permitting access" response category. At the 99% confidence level only 1 subject is excluded. These general results are identical to the general results for the "midway on access" response category. In addition, the subject excluded from the 99% confidence interval for categories 1 and 2 is the only subject excluded from the 95% and 99% confidence intervals for the "ignoring" and the combined "blocking access" categories. The "angry blocking access" category has 3 completely different subjects excluded from the 95% confidence interval, but none for the 99% confidence interval.

Table 2

Confidence levels based on 23 subjects

Subscale	Permitting	Midway	Ignoring	Angry	Collapsed
	(1)	(2)	(3)	(4)	(3-4)
Subjects	23	23	23	23	23
Total Responses	484	48	12	8	20
Mean	21	2.08	.5	.35	.9

Table 2 (continued)

Subscale	Permitting (1)	Midway (2)	Ignoring (3)	Angry (4)	Collapsed (3-4)
Sum of squares	381	218	41.75	11.22	48.22
Standard deviation	4.07	3.08	1.35	.70	1.45
68% C.I.	17 to 24	0 to 5	0 to 1.9	0 to 1	0 to 2.4
68% of N	16	16	16	16	16
No. in 68% C.I.	19	20	21	20	20
95% C.I.	15 to 24	0 to 8	0 to 3	0 to 1.8	0 to 3.7
95% of N	22	22	22	22	22
No. in 95% C.I.	21	21	22	20	22
Identity of Ss. out	#15, #21	#15, #21	#21	#8, #13, #21	#21
99% C.I.	12.5 to 24	0 to 10	0 to 4	0 to 2	0 to 4.6
99% of N	23	23	23	23	23
No. in 99% C.I.	22	22	22	23	22
Identity of Ss. out	#21	#21	#21	-	#21

When subject #21 (see Table 3) is excluded from the analysis because of his obvious "outlier" status, subjects

#10 and #15 are excluded from the 99% confidence interval in one and in two response categories, respectively. Three subjects then, may reasonably be classified as outliers - #10, #15, and #21 - on the basis of being excluded at one or the other 99% C.I. The use of a cut-off point approximately two standard deviations from the mean is not unusual in psychological studies. The importance of its arbitrariness is discussed in Chapter 5. Three other subjects can perhaps be considered to be "borderline outliers" - #8, #23, and #13 - on the basis of being excluded from one or more 95% C.I. when subject #21 is left out of the analysis. Thirteen percent (3 of 23) of subjects are classified as outliers. If the 3 borderline outliers are included then 26% of subjects are classified as outliers.

Table 3

Confidence levels based on 22 subjects

Subscale	Permitting	Midway	Ignoring	Angry	Collapsed
	(1)	(2)	(3)	(4)	(3-4)
Subjects	22	22	22	22	22
Total Resp.	477	37	6	8	14
Mean	22.00	1.68	.27	.36	.64
Sum of					
squares	185	137	10.38	11.09	24.40
95% C.I.	16.2-24	0-6.6	0-1.6	0-1.8	0-2.7
95% of N	21	21	21	21	21
No. in					
95% C.I.	19	21	21	19	20
Identity					
of Ss. out	#10, #13, #15	#15	#10	#8, #13, #23	#10, #13
99% C.I.	14.3-24	0-9	0-2.1	0-2.1	0-3.3
99% of N	22	22	22	22	22
No. in					
99% C.I.	21	21	21	22	22
Identity					
of Ss. out	#15	#15	#10	-	-

Table 4

Summarized data for all subjects in both inventories

Inventories								
F./U. I.				P./B. I.				
Subscales								
Subjects	A	B	C	1	2	3	4	
1	2	1	1	20	04	0	0	
2	5	1	0	23	01	0	0	
3	4	2	0	22	02	0	0	
4	4	0	0	24	00	0	0	
5	2	1	0	24	00	0	0	
6	3	1	0	24	00	0	0	
7	3	0	1	24	00	0	0	
8	3	1	0	22	00	0	2	
9	5	0	0	23	01	0	0	
10	4	1	0	16	05	3	0	
11	1	2	2	20	02	1	1	
12	5	1	0	23	01	0	0	
13	3	1	0	15	06	1	2	
14	3	1	1	23	01	0	0	
15	5	1	0	14	10	0	0	
16	4	1	0	22	02	0	0	

Internal Consistency

The results of anovas are given in Table 5 for the collapsed response categories, "permitting access" (1), "midway on access" (2) "blocking access" (3-4). In no instance was the variable "halves" significant either as a main effect or as part of an interaction. This variable corresponds to the two groups of 11 and 12 subjects who were presented the drawings in counterbalanced order. Presentation order was varied in this manner in order to check for one form of response bias. The group of 23 subjects could have been split up in numerous other ways as well in order to demonstrate internal consistency.

The main effects and the interaction of "situation" and "caregiver" are significant for the "midway on access" response category. These results should be subsumed to the loglinear results for the collectively analyzed response categories.

Table 5

Anova results within response categories

Response category	Main effect or interaction	F	Sig. of F
Permitting (1)	halves	.02	.909
	caregiver	.47	.717
	situation	1.02	.644
	halves by caregiver	.22	.834
	halves by situation	1.00	.650
	caregiver by situation	.62	.774
	halves by caregiver by situation	.23	.942
Midway (2)	halves	1.49	.231
	situation	1.59	.173
	halves by situation	.96	.478
	halves	1.58	.216
	caregiver	2.34	.108
	halves by caregiver	.10	.905
	situation	2.79	.028*
	caregiver	4.16	.028*
	situation by caregiver	2.59	.019*

Table 5 (continued)

Response category	Main effect or interaction	<u>F</u>	Sig. of <u>F</u>
<hr/>			
Combined Ignoring and Angry (3-4)			
	halves	.02	.909
	caregiver	.29	.795
	situation	.33	.873
	halves by caregiver	.03	.970
	halves by situation	.23	.927
	caregiver by situation	.18	.968
	halves by caregiver by situation	.15	.977

Note. No F given for response by halves by caregiver by situation - for "midway on access" response category

* $p < .05$.

Analyses Based on a Subject's Choice of a Response
Category One or More Times

One hundred percent of subjects selected the "permitting access" (1) response category one or more times. Fifty-seven percent (13 of 23) selected the "midway on access" (2) category one or more times. Twenty-two percent (5 of 23) selected each of "ignoring" (3) and "angry (4) blocking access" response categories one or more times. Clearly, the "22%" for each of categories 3 and 4 represents two different but overlapping subgroups since 30% (7 of 23) of subjects were found to choose the collapsed "blocking (3-4) access" category one or more times. Seventy percent (16 of 23) of subjects chose categories 2, 3 and/or 4 one or more times.

Table 6

Probabilities for response categories

The prob. of 1 or more 1s	100%
The prob. of 1 or more 2s	57%
The prob. of 1 or more 3s	22%
The prob. of 1 or more 4s	22%
The prob. of 1 or more 3s or 4s	30%
The prob. of 1 or more 3s given 1 or more 2s	4/9=44%
The prob. of 1 or more 4s given 1 or more 2s	2/11=18%
The prob. of 1 or more 3s or 4s given 1 or more 2s	4/9=44%

Table 6 (continued)

The prob. of 1 or more 2s given 1 or more 3s	4/5=80%
The prob. of 1 or more 3s given 1 or more 4s	3/5=60%
The prob. of 1 or more 4s given 1 or more 3s	3/5=60%
The prob. of 1 or more 2s given 1 or more 4s	2/5=40%

The knowledge that a subject chose response category 1 one or more times does not provide additional information about the probability of a subject choosing any other response category one or more times. In this sense categories 2 and 3 are clearly partially dependent since the knowledge that a subject has chosen one of them 1 or more times increases the probability that the subject has chosen the other 1 or more times from 22% to 44% or from 57% to 80%.

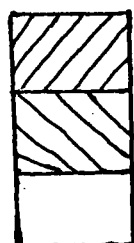
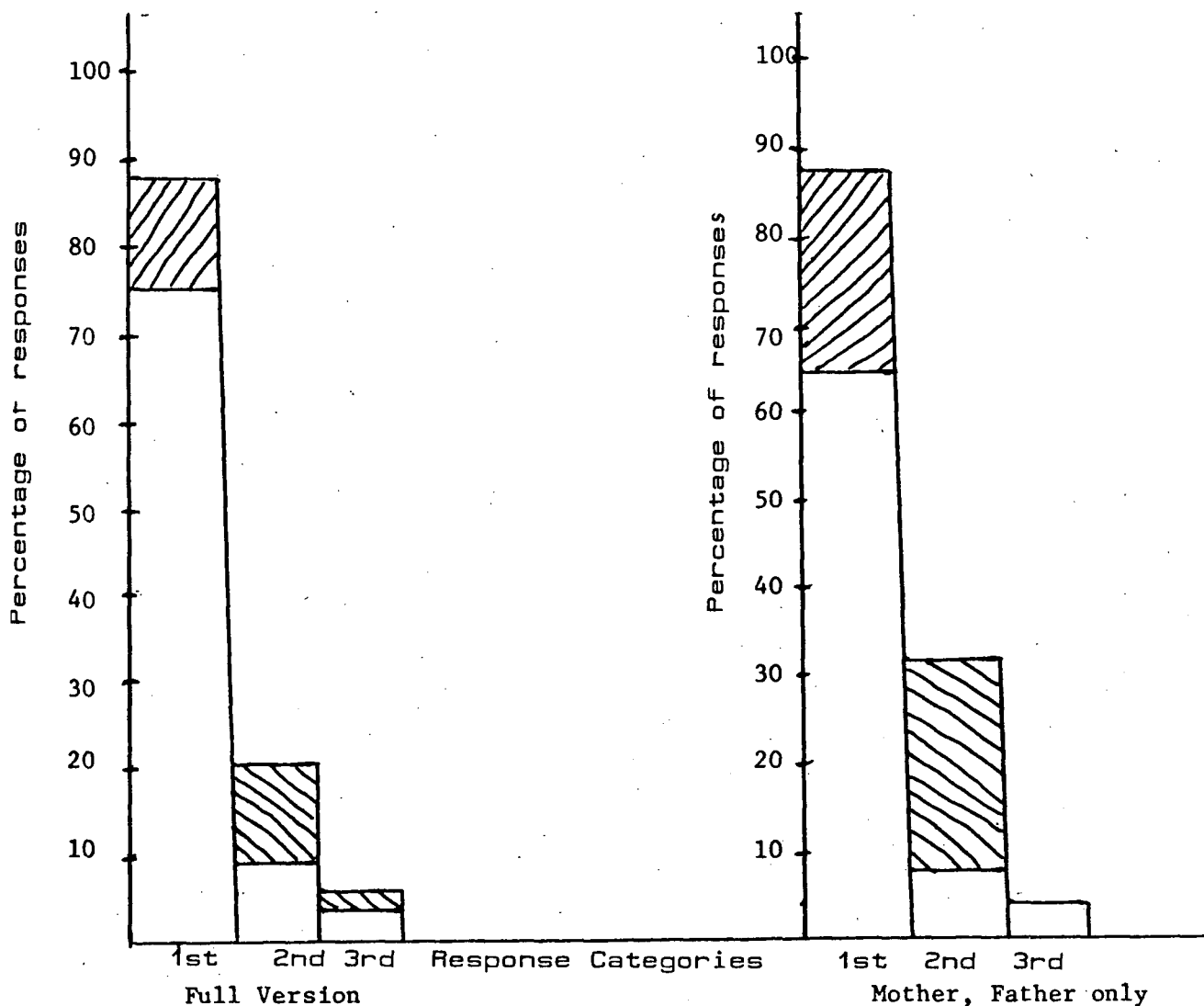
The probability of one or more 3s given one or more 2s is the same (44%) as the probability of one or more 3s or 4s given one or more 2s. However, the knowledge that there are one or more 4s could actually lower the probability of one or more 2s from 57% to 40%. From this data 2 and 4 are independent one way and negatively dependent the other. On the other hand, categories 3 and 4 are clearly positively dependent since the knowledge that there are one or more of either 3 or 4 increases the probability of there being one or more of the other from 22% to 60%.

Comparison of the Permitting/Blocking Access and
Friendliness/Unfriendliness Inventories

A loglinear analysis of the relationship between "caregiver" (mother and father only) and the two response variables from the two inventories produced a near-significant Pearson chi square statistic ($p = .06$). The Likelihood-Ratio chi square had a much higher level of probability, but the Pearson is more accurate for small samples such as this one (Fienberg, 1980). Again the relative lack of data produced from this inventory affected the results of the analysis. This was due to the fact that loglinear analysis requires that all data for all variables be consecutively numbered with each numerical category represented. Substantial recoding was required resulting in the loss of information.

The relationship between distributions across inventories is perhaps best expressed visually (see Figure 1). The first (1), second (2) and third (3-4) response categories of the collapsed Permitting/Blocking Access Inventory are compared to the first (A), second (B) and third (C) response categories of the Friendliness/Unfriendliness Inventory. The comparison is made for both full and partial versions of both inventories. The full version compares the data for all "caregivers" in the primary inventory and all "others" in the secondary inventory. The partial version compares "mother" and "father" only across the two inventories.

FIGURE 1: Comparison of Permitting/Blocking Inventory and Friendliness/Unfriendliness Inventory for All Caregivers and Others, and for Mother, Father Only



Permitting/Blocking Inventory
88:9:3 (full)

88:8:4 (partial)

Friendliness/Unfriendliness Inventory
75:20:5 (full)

65:31:4 (partial)

Both inventories

Skewness towards "most friendly" in the case of the secondary measure and towards "most permitting" in the case of the primary measure is obvious; this is reflected in the highly significant ($p < .001$) chi squares for the full and partial versions of each measure in Tables 7, 8 and 9.

Table 7

Significance of the distribution across response categories for the full version of the primary measure

Inventory	Permitting/Blocking Access			
No. of subjects	23			
Variables	caregiver, situation			
Categories	3	8		
Responses/subject	24			
Total responses	552			
<hr/>				
Response category	Permitting (1)	Midway (2)	Ignoring (3)	Angry (4)
<hr/>				
Total responses	484	48	12	8
Proportion	88%	9%	2%	1%

chi square = 1176.8

critical value for $df=3$ is 16.3

1176.8 > 16.3

* $p < .001$

Table 8

Significance of the distribution across response categories
for a reduced version of the primary measure

Inventory	Permitting/Blocking Access		
No. of subjects	23		
Variables	caregiver	situation	
Categories	2 (mother, father)	7 ("self" excluded)	
Responses/subject	14		
Total responses	322		
<hr/>			
Response category	Permitting (1)	Midway (2)	Blocking (3-4)
<hr/>			
Total responses	284	25	13
Proportion	88%	8%	4%
<hr/>			
chi square = 605.2			
critical value for <u>df</u> =2 is 13.8			
605.2 > 13.8			

* $p < .001$

Table 9

Significance of the distributions across response categories for a reduced version and the full version of the secondary measure

	(A)	(B)
Inventory	Friendliness/ Unfriendliness	Friendliness/ Unfriendliness
No. of subjects	23	23
Variable	other	other
Categories	mother, father	mother, father, peers, teachers, relatives
No. of categories	2	5
Responses/subject	2	4-6
Total responses	46	110
(A) Response		
category	Most friendly	Midway on friendliness
		Least friendly
Total responses	30	14
Proportion	65%	31%
		4%

chi square = 29.84

critical value for df=2 is 13.8

29.84 > 13.8

Table 9 (continued)

(B) Response category	Most friendly	Midway on friendliness	Least friendly
Total responses	82	22	6
Proportion	75%	20%	5%

chi square = 57.2

critical value for df=2 is 13.8

57.2 > 13.8

* $p < .001$

One slight advantage of the secondary inventory is that it explores inner images for a wider variety of objects (see Table 10). Unfortunately, the submeasures of "home" and "school" are of no use since many of the subjects assumed the bars on the windows to be "blinds" or "curtains". The submeasures of "mother" and "father" were the most useful since they could be directly compared on the primary measure. The relation of the distribution to primary measure distributions is observable in Figure 1.

Table 10

Summary of data from Friendliness/Unfriendliness Inventory

	Response category		
	(A)	(B)	(C)
Variable			
"others"			
<hr/>			
mother	14	9	0
father	16	5	2
teachers	18	4	1
relatives	13	3	2
peers	21	1	1

Subcategories Within the Ignoring Blocking Access

Response Category

A posteriori, it was noted that the "ignoring blocking access" response category was depicted in 2 rather different ways. In 4 of the situations ("bully", "cut knee", "smiling child reaching", "distressed child reaching") a rear profile of the caregiver is given. In 2 of the situations ("self", "puzzle-schoolwork") the profile of the face and body is shown. The other 2 situations ("sick", "spilt milk-late") depict hybrid "ignoring" versions for each caregiver or across caregivers. Six of the 12 selections of the "ignoring" category for the group occurred in the first set of 2 situations distinguished above. Only 1 of the 12 occurred in the set of 4 situations distinguished above. If the hybrid versions are included such that the "ignoring" response category is divided into a set that shows facial features and a set that does not, then it is found that 11 of 12 "ignoring" selections depicted facial features. Furthermore, there were 13 possibilities without facial features to choose from compared to 11 with facial features. The 2 sets - with and without facial features - are distributed almost equally across caregivers.

Test for Understanding

Seventeen of the 23 subjects whose data were used in this study and 1 subject whose data were not used were given a short test of understanding using submeasures of the secondary inventory. Subjects were shown the submeasures for "teachers", "peers", "mother", "father", "sister", and "brother" one at a time. They were first asked to point to the drawing which is "the most friendly and nice". Their selection was then covered and they were asked to point to the drawing which is "the most angry and unfriendly". One child got 2 of 12 responses correct. This child was already strongly suspected of not being able to respond on the basis of adequate understanding of the measures. His data were not used at all in this study. The other 17 subjects each received a minimum of 10 correct scores. There were a total of 6 errors from five subjects out of a possible 204. All errors involved confusions between the "most friendly" and "midway on friendliness" categories. Three subjects who made single errors were retested on the submeasures. Two of the 3 corrected their error and no new errors were made. It is concluded that subjects appear to have an adequate understanding of the verbal and visual concepts required to participate in the study.

Chapter 5: Discussion:
Interpretation of Cognitive, Affective or Response Bias
in the Results

With respect to the study goal of representing childrens' internal images or conceptualizations, it is not necessary to demand that such images be free of the effects of cognitive or affective bias. These images, as aspects of the childrens' inner working models, are subject to the same forms of bias as inner models in general. This study attempts to access the inner working model primarily at the level of semantic memory (P. Crittenden, personal communication, June, 1990). It is possible that salient episodic memories also enter directly into the results for the more concrete situation-specific measure. However, it is thought for the most part that episodic memory is only being accessed indirectly via semantic memory. Both semantic and episodic memory are subject to cognitive and affective distortion. One form of bias associated with the semantic level of memory is the idealization of the parent. The highly skewed results towards the "permitting access" response category and the subsequent ceiling effect suggest the possibility that this form of cognitive/affective bias is present. On the other hand, Bowlby (1973, 1980) and Main et al. (1985) discuss idealization of the parent as typically associated with rejection and low self-esteem.

There is no evidence of low self-esteem suggested in the childrens' images of their own responses to caregivers. Furthermore, there is no significant difference in the way the group views the three caregivers. If idealization of parents is a factor in this group profile then its effects, or the effects which it represents, have generalized to include the three categories of caregivers. In addition, to the extent that the concrete situation-specific nature of the primary measure can access episodic memory more or less directly, any "idealization of parent" effect could be reduced. This, of course, assumes that the idealization of the parent occurs via the semantic level of the inner model and that this level might be bypassed.

Cassidy and Kobak (1988) state that "avoidance" is central to idealization of the self and deactivation of the attachment system at the representational level. They suggest that "avoidance" in particular and attachment organization in general can influence the effects of experimental observation on self-related representations. Of course, the attachment organization of these subjects is not known. Superficial examination of the data could indicate that there is little evidence of "avoidance" as a form of cognitive/affective bias. This is based on the relatively large proportion of "permitting access" responses and on the interpretation that this indicates activation rather than deactivation of the attachment behavioural system. Such an interpretation is not justified for at

least two reasons. A relatively small proportion of "non-permitting access" responses may be indicative of cognitive and affective bias. Secondly, images of responsive caregivers do not necessarily indicate a lack of deactivation of the attachment behavioural system amongst the children in general. That still requires that a substantial inference be made - although it is tempting to do so. We do know four relevant things about children of this age who have avoidant attachment organizations. (a) They tend to represent themselves ideally. (b) They tend to represent others as distant (Cassidy, 1988). (c) They are able to acknowledge distress in themselves (Kaplan & Main, 1985). (d) They don't tend to reach out to others (Cassidy, 1988). The third fact is relevant because seven of the eight situations depict a child in distress. The first point could be relevant if it could be assumed that the childrens' representations of themselves as "permitting of access" are indicative of ideal self-representation. One still has to interpret the exceptions, however. The tendency to represent others as distant is most relevant, but again the possibility must be faced that a relatively small proportion of "non-permitting access" responses may be indicative of "avoidance" or avoidant attachment organization. The fourth point can be assessed most easily and directly in the childrens' expectations of their own responses to the caregivers. Six children selected the "midway on access" or "ignoring" response categories. None

selected the "angry" response category. One child selected each of these two categories once (#13). One selected the "ignoring" category twice and the "midway on access" category once (#21). Interestingly, these children achieved outlier or borderline outlier status. The other four children each selected the "midway on access" category once.

The drawings presented to the children can also be viewed as stimuli in themselves. Several of the situations as well as the "angry" caregiver responses, if not the "ignoring" caregiver responses, could act as stimuli sufficient to activate the attachment behavioural system. It is possible that in one or more cases the subject was in effect withdrawing from a noxious stimuli and approaching a positive stimuli when he chose the "permitting access" response category. It would be interesting to present the drawings to a group of children with the most noxious stimulus, the "angry" caregiver response category removed.

There is the possibility of at least two other general forms of response bias in effect in this study. First, the childrens' responses could be influenced by a desire to respond as they imagine the interviewer wants them to respond (observer effect). Piaget (1924) and Piaget and Inhelder (1948) demonstrated that children under the age of 7 have great difficulty seeing from another's point of view ("egocentrism"). This fact reduces but does not eliminate the possibilities of this form of response bias. There is in addition the possibility of a general positivity bias,

that is, a tendency to select only "positive" behaviours. Again the notable ceiling effect for the "permitting" response category is suggestive. Two sets of studies are relevant although the point remains unsettled. Reider and Cicchetti (1989) demonstrated that 4 to 9-year-old boys but not girls "sharpen to" aggressive cues. One can conclude from this that the male subjects in this study were at least likely to accurately note the "angry blocking" response category even though it was the least selected. In addition, a pair of studies by Rholes and Ruble (1984) showed that 5 to 7-year-old children did not label the behaviours of other children as positively as did 9 to 10-year-olds even though they were demonstrated to be capable of doing so.

It can not be ruled out that the results of this study are subject to mood or other short-term within subject factors. However, the overall homogeneity and general patterns of responses for the group suggest the minimization of the effects of such factors. This is important in terms of the reliability of the study. In addition, all subjects appeared to be fresh and healthy versus tired or ill. One subject (#21) seemed particularly sombre throughout the interview. Although very polite, he never came close to cracking a smile. This was noted at the time as unusual. However, it is not known to what extent this was typical of the boy or merely a short term characteristic.

General Discussion

Particularly with an exploratory design such as this one a failure to prove some of one's hypotheses is not overly consequential. They are mentioned only in passing, their usefulness having been expended. One such hypothesis was that about 75% to 80% of subjects would show a primarily "permitting" profile and 20% to 25% - a primarily "blocking" profile. A primarily "permitting" profile for an individual would consist of about 75% to 80% "permitting" selections (1) and 20% to 25% "blocking" selections (3-4). The "midway on access" category was not initially conceived of as a valid category in itself. It was planned that if a subject chose response category 2 he would be asked some questions like, "what is he/she doing? what is he/she thinking? what is he/she feeling?" It was hypothesized that the child's answers would allow classification in categories 1,3 or 4, or perhaps it would provide some unexpected information. It was in part a method to "open up" the closed forced-choice categories. It was additionally a way to "fill out" the dimension or continuum from "permitting" to "blocking access". It was also hypothesized that the variable "caregiver" would be shown to be moderately significant and at least as significant as the variable "situation".

The variable "caregiver" was demonstrated not to be significant. The variable "situation" was demonstrated to be significant, at least for the collapsed response

categories (1,2,3-4). The second response category indeed served one of its functions, namely the "filling out" of the "permitting" to "blocking access" dimension. It was selected 8% of the time, twice as often as the combined "blocking access" categories. It was also chosen by nearly twice as many children (57% vs. 30%). Furthermore, once a child chose this response category he gave the interviewer no reason whatsoever to reclassify it in one of the other categories.

Even the one subject (#21) most deserving of the term "outlier" did not match the description of the primarily "blocking" profile for an individual. His profile is about 25% "permitting", 25% "blocking" and 50% "midway on access". 7 individuals show a 100% "permitting" profile. Ten others show a 92% to 96% "permitting" profile. Clearly, the "permitting" and "midway on access" response categories were selected much more often than was expected and the "blocking access" categories much less often than expected. As a result, the criterion used to distinguish outliers from a relatively homogeneous group, if there is to be any criterion at all, appears more stringent in its effect than would have been expected on the basis of earlier hypotheses. In other words, using normal distribution confidence intervals as the criterion to define an outlier, a 67% "permitting access", 21% "midway on access", and 12% "blocking access" profile (#10) is sufficient in one case to define an outlier. Using more stringent confidence interval

criteria to define "borderline outliers" causes two subjects (#8, #23) with 92% "permitting" and 8% "angry blocking" access profiles to be so defined. This defines a group profile described by having 13% (3 of 23) outliers, or 26% (6 of 23) outliers or borderline outliers. These classifications do not have diagnostic validity or significance. The confidence interval criteria are somewhat arbitrary and future studies may develop more useful, more empirically based and/or less arbitrary criteria. They are used here to describe the group in terms of its similarities and differences along a rather limited number of dimensions or variables (ie. "caregiver", "situation", "response"). Outliers and borderline outliers have an operational or statistical definition as used in this study. However, it is premature to give them a theoretical definition. Subjects who meet this operational definition, and subjects who do not meet it, need to be compared on other psychological measures whose validity and reliability are established.

There are several other patterns that can be distinguished across response categories and inventories. These patterns provide support for the relevance, the non-haphazardness, and the internal consistency of the subjects' selections across or within the response categories. By this means, the patterns provide - and are submitted as - support for the validity of the response categories and their associated construct, "inner images" or

"conceptualizations". Stronger evidence of validity will require future studies with similar and different groups of subjects.

The most obvious pattern across categories in both inventories is the highly significant skewed nature of the distributions. They are similar distributions but not to a statistically significant degree. It is the case, however, that if the first two categories of the Friendliness/Unfriendliness measure are collapsed the category ratio changes from 15:7:1 to 22:1. The collapsed (1,2,3-4) Permitting/Blocking measure response category ratio is 22:2:1. A case could be made for collapsing (in the "Friendliness/Unfriendliness ratio) the first two categories on the basis that the second category really is a lot more like the first category than the third.

It was suspected that there would be a higher proportion of "permitting access" responses than "most friendly" responses pertaining to these parents. There are two related reasons for this. Firstly, the parents of this subject group were clearly not selected in order to form any kind of high-risk profile group. Secondly, the situations depicted were intentionally constructed around issues of child stress and distress. In general, these parents would be expected to be more sensitively responsive to their children in such situations. However, if a high-risk group of parents or a maltreating group of parents had been systematically selected this might not be the case.

It is not possible, however, to confidently interpret the relation of the results from the two inventories. The secondary inventory is perhaps most useful in its capacity to highlight the superiority of a measure which depicts multiple situations over one depicting no situations whatsoever.

The demonstration that there is internal consistency within response categories is of course not strong evidence of validity. On the other hand, without internal consistency, validity is seriously threatened.

The fact that at least 22% of subjects selected each response category one or more times combined with the fact that internal consistency is demonstrated within each response category provides good empirical support for the relevance and the validity of the response categories. Further exploration of the ideal number and forms of response categories for the dimension of "permitting/blocking access" is suggested however. The "ignoring blocking access" category appears to be mutually dependent with both the "midway on access" and the "angry blocking access" categories. The "angry blocking access" and the "midway on access" categories appear to be either independent or negatively dependent. Conclusions must be tentative but it appears that the "ignoring blocking access" response category is between the other two on a "permitting/blocking access" continuum.

On the basis that the "ignoring" and "angry" categories are both "blocking access" categories, it was thought likely that an association would be found between the two. However, the very different kinds of association found between the "ignoring" and "midway on access" categories on the one hand, and the "ignoring" and "angry blocking access" categories on the other, was not foreseen.

It is additionally noteworthy that subjects who selected the "ignoring blocking access" category almost always selected the side profile depiction showing part of the face over the depiction of the caregivers' backs. This was the case despite the fact that there was at least an equal opportunity to select the latter version of the "ignoring" response category. This has implications for the design of future studies.

Table 11

Situation by caregiver by response

Response category		(1)	(2)	(3)	(4)
Situation	Caregiver				
Distressed child reaching	mother	20	1	1	1
	father	20	3	0	0
	teacher	16	7	0	0
	total	56	11	1	1
Cut knee	mother	22	1	0	0
	father	19	3	0	1
	teacher	22	1	0	0
	total	63	5	0	1
Sick	mother	18	4	1	0
	father	18	4	0	1
	teacher	20	1	0	0
	total	55	10	2	1
Bully	mother	22	1	0	0
	father	21	2	0	0
	teacher	21	2	0	0
	total	64	5	0	0
Puzzle-Schoolwork	mother	20	1	2	0
	father	20	2	0	1
	teacher	20	0	2	1
	total	59	3	4	2

Table 11 (continued)

Response Category		(1)	(2)	(3)	(4)
Situation	Caregiver				
Spilt milk-Late	mother	20	1	1	1
	father	19	1	1	2
	teacher	21	2	0	0
	total	60	4	2	3
Smiling child reaching	mother	23	0	0	0
	father	22	1	0	0
	teacher	20	3	0	0
	total	65	4	0	0
Self	mother	20	1	2	0
	father	22	0	1	0
	teacher	18	5	0	0
	total	60	6	3	0

The significance of the variable "situation" and the insignificance of its interaction with, or the main effect of, the variable "caregiver" is certainly interesting. The greatest difference in the childrens' responses appears to be between the depiction of the child reaching for a hug with a distressed look on his face and the depiction of the child reaching for a hug with a smile on his face (see Table 11). Category 1 received more; all other categories received less responses when the child was depicted smiling. Children also appear to view their caregivers as responding more sensitively when they have cut their knee as opposed to when they are sick. All caregivers are seen to respond protectively for the most part to the situation of the child being bullied. The "distressed child reaching for a hug" situation received the most "midway on access" responses (11 of 48). The "child frustrated with puzzle or schoolwork" situation received the most "ignoring blocking access" responses (4 of 12). The "distressed child has spilt his milk" situation received the most "angry blocking access" responses (3 of 8).

Conclusion

This study provides some support for the validity of the four response categories. In doing so, it supports the notion of the centrality of the underlying dimension of "permitting to blocking" access suggested by attachment theorists, Main, Kaplan and Cassidy (1985). The "midway on access" response category, to the extent that its validity is here supported, is an additional response category on the dimension of "permitting to blocking access". Although the underlying dimension was described by Main, Kaplan and Cassidy, this response category was not. This study also supports the contention that childrens' inner images or conceptualizations of self and others can be represented visually.

Methodological rigourousness requires that conclusions presented in the remaining section be considered tentative. The validity of the primary measure requires further support, in part because of the small size of the sample. In addition, this study is in essence an internal validity study. One should not use the presence of patterns in the data to support the validity of the response categories - and then use the significance levels of variables determined in relation to the response categories - to make further conclusions. On the other hand, to the extent that the response categories are validated on a theoretical basis and

by various related attachment studies, the following conclusions are supported.

The three caregivers that were depicted in this study were considered to be primary attachment figures in the case of the parents and tentatively, secondary attachment figures in the case of the main teachers. All of the situations that were depicted in the study were considered to be attachment-related situations, although some more than others. The minimum criterion used, if proximity seeking was not depicted, was that the child be depicted in a state of distress. The only other variable, "response category", was also generated from attachment theory. Each of the 552 subject selections involved the child and one caregiver in one situation. The variable "situation" is significant beyond the .05 level with $p = .035$ (using the more appropriate Pearson statistic) for the collapsed response categories. Neither the variable "caregiver" nor its interaction with the variable "situation" is significant.

A fairly generalized meta-structure of internal working models is suggested by this group profile of 5 to 7-year-old boys. Even the outliers responded similarly across caregivers. "Multiple unrelated inner working models" in which the individuality of each relationship but not the coherency between them is recognized - is not suggested for these subjects. In addition, the data on teachers relative to parents can be interpreted as evidence that main female

teachers after 9 or 10 months of teaching a child may be considered to be an attachment figure to that child.

Finally, several studies (Bauer and Twentyman, 1985; Kadushin and Martin, 1981; Thomson, Paget, Bates, Mesch, & Putman, 1971; Zussman, 1980) have noted situational specificity of caregiver response under general conditions. This study gives support to the notion of situational specificity of caregiver response under conditions of child attachment behavioural system activation.

Future Research Directions

If inner images can be successfully explored for this group of children it may be done for other groups - including groups of girls, older children, abused children, peer-rejected children, etc. Comparisons can then be made amongst different groups and their profiles. It may eventually be possible to use this kind of research directly to facilitate normal development or intervention and/or indirectly through the development of research theory in child development.

This particular line of research may in the future explore one or more of the following directions: (a) the development of new forced choice categories, e.g., "malicious laughter" as a caregiver response; or "ignoring blocking access" responses specifically with and/or without facial features; (b) the development of new situations, e.g., "child asking caregiver to join him in play" or vice-versa; or "child has damaged a material possession with

caregiver present"; or "child awakes from a nightmare with parent present"; (c) the comparison of members of one group in terms of their inner images across time; (d) the comparison of different types of groups in terms of their inner images; (e) the comparison of inner image profiles for one group to attachment classifications or other behavioural/cognitive measures taken at various points in time.

A child's cognitive capacities at different ages are an important developmental consideration in the current and in future study designs. The development of cognitive capacities over time could be one factor that seriously hampers attempts to develop in the third direction mentioned. On the other hand, if developmental change can be isolated from actual differences in the content of the inner images of the individuals' internal working models there may be no problems; however, there have been few assessments directed primarily towards exploring developmental change in this general area (Crittenden, 1989).

Research and development in the first two directions above can ultimately contribute to the overall validity of the inventory in its final form. The final two directions mentioned involve an essential extension of the study in terms of its generalizability and external validity.

References

- Aber, J.L. & Allen, J.P. (1987). Effects of maltreatment on young children's socioemotional development: An attachment theory perspective. Developmental psychology, 23(3), 406-414.
- Aber, J.L., Allen, J.P., Carlson, V., & Cicchetti, D. (1989). The effects of maltreatment on development during early childhood: recent studies and their theoretical, clinical, and policy implications. In V. Carlson and D. Cicchetti (Eds.), Child maltreatment (pp. 579-616). New York: Cambridge University Press.
- Ainsworth, M.D.S. (1982). Attachment: Retrospect and prospect. In J. Stevenson-Hinde and C. Murray Parkes (Eds.), The place of attachment in human infancy (pp. 3-30). New York: Basic Books.
- Ainsworth, M.D.S., Blehar, M.C., Waters, E., & Wall, S. (1978). Patterns of attachment: A psychological study of the strange situation. Hillsdale, NJ: Erlbaum.
- Ainsworth, M.D.S. & Wittig, B.A. (1969). Attachment and the exploratory behavior of one-year-olds in a Strange Situation. In B.M. Foss (Ed.), Determinants of infant behavior vol. 4 (pp.113-116). London: Methuen.
- Axline, V. (1947). Play therapy. New York: Ballantine.
- Azar, S.T., Robinson, D.R., Hekimian, E. & Twentyman, C.T. (1984). Unrealistic expectations and problem-solving

- ability in maltreating and comparison mothers. Journal of consulting and clinical psychology, 52(4), 687-691.
- Azar, S.T. & Rohrbeck, C.A. (1986). Child abuse and unrealistic expectations: Further validation of the Parent Opinion Questionnaire. Journal of consulting and Clinical Psychology, 54(6), 867-868.
- Bauer, W.D. & Twentyman, C.T. (1985). Abusing, neglectful, and comparison mothers' responses to child-related and non-child-related stressors. Journal of consulting and clinical psychology, 53(3), 335-343.
- Belsky, J. & Nezworski, T. (1988). Clinical implications of attachment. In J. Belsky & T. Nezworski (Eds.), Clinical implications of attachment (pp. 3-17). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Belsky, J., Rovine, M., & Taylor, D. (1984). The origins of individual differences in infant-mother attachment: Maternal and infant contributions. Child development, 55, 718-728.
- Berger, A.M., Knutson, J.F., Mehm, J.G., & Perkins, K.A. (1988). The self-report of punitive childhood experiences of young adults and adolescents. Child abuse and neglect, 12, 251-262.
- Blehar, M.C., Ainsworth, M.D.S., & Main, M. (unpub.). Mother-infant interaction relevant to close bodily contact: A longitudinal study.
- Blehar, M.C., Lieberman, A.F., & Ainsworth, M.D.S. (1977). Early face-to-face interaction and its relation to later

- infant-mother attachment. Child development, 48, 182-194.
- Bowlby, J. (1969). Attachment and loss. vol.1: Attachment.
New York: Basic Books.
- Bowlby, J. (1973). Attachment and loss. vol.2: Separation.
New York: Basic Books.
- Bowlby, J. (1980). Attachment and loss. vol.3: Loss, sadness, and depression. New York: Basic Books.
- Bowlby, J. (1988). A secure base. New York: Basic Books.
- Bretherton, I. (1984). Symbolic play: The development of social understanding. New York: Academic Press.
- Bretherton, I. (1985). Attachment theory: Retrospect and prospect. Monographs of the Society for Research in Child Development, 50(1-2, Serial No. 209).
- Bretherton, I., Ridgeway, D., & Cassidy, J. (1990). The role of internal working models in the attachment relationship: Can it be studied in three-year-olds?. In M. Greenberg, D. Cicchetti, and E. Cummings (Eds.), Attachment in the preschool years: theory, research and intervention (pp. 273-308). Chicago: University of Chicago Press.
- Burgess, R.L. & Conger, R.D. (1978). Family interaction in abusive, neglectful, and normal families, Child development, 49, 1163-1173.
- Carlson, V., Cicchetti, D., Barnett, D., & Braunwald, K.G. (1989). Finding order in disorganization: Lessons from research on maltreated infants' attachments to their caregivers. In V. Carlson & D. Cicchetti (Eds.), Child

- maltreatment (pp. 525-531). New York: Cambridge University Press.
- Caspi, A. & Elder, G.H., Jr. (1988). Emergent family patterns: The intergenerational construction of problem behaviour and relationships. In Hinde and Stevenson-Hinde (Eds.), The relationships within families: Mutual influences (pp. 218-240). Oxford: Clarendon Press.
- Cassidy, J. (1988). Child-mother attachment and the self in six-year-olds. Child development, 59, 121-134.
- Cassidy, J., & Kobak, R.R. (1988). Avoidance and its relation to other defensive processes. In J. Belsky and T. Nezworski (Eds.), Clinical implications of attachment (pp. 300-323). Hillsdale, NJ: Lawrence Erlbau Associates, Inc.
- Christensen, R. (1990). Log-linear models. New York: Springer-Verlag Inc.
- Cohn, D.A. (1990). Child-mother attachment of six-year-olds and social competence at school. Child development, 61, 151-162.
- Craik, K. (1943). The nature of explanation. Cambridge: Cambridge University Press.
- Crittenden, P. (1983). The effect of mandatory protective daycare on mutual attachment in maltreating mother-infant dyads. Child abuse and neglect, 7, 297-300.
- Crittenden, P. (1985). Social networks, quality of child rearing, and child development. Child development, 56, 1299-1313.

- Crittenden, P. (1988a). Family and dyadic patterns of functioning in maltreating families. In K. Browne, C. Davies, and P. Stratton (Eds.), Early prediction and prevention of child abuse (pp. 161-189). New York: Wiley.
- Crittenden, P. (1988b). Relationships at risk. In J. Belsky and T. Nezworski (Eds.), Clinical implications of attachment (pp. 136-174). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Crittenden, P. (1988c). Distorted patterns of relationship in maltreating families: The role of internal representation models. Journal of reproductive and infant psychology, 6, 183-199.
- Crittenden, P. (1989). Internal representational models of attachment relationships. Paper presented at the World Association of Infant Psychiatry and Allied Disciplines, Lugano, Switzerland.
- Crittenden, P. & Ainsworth, M.D. (1989). Child maltreatment and attachment theory. In V. Carlson and D. Cicchetti (Eds.), Child maltreatment (pp. 432-463). New York: Cambridge University Press.
- Crittenden, P. & DiLalla, D.L. (1988). Compulsive compliance: The development of an inhibitory coping strategy in infancy. Journal of abnormal child psychology, 16(5), 585-599.
- Dodge, K., & Richard, B. (1985). Peer perceptions, aggression, and the development of peer relations. In J. Pryor and J. Day (Eds.), The development of social

- cognition (pp. 35-58). New York: Springer-Verlag.
- Dubin, R. & Dubin, E.R. (1964). Children's social perceptions: A review of research. Child development, 35, 1-10.
- Egeland, B. & Farber, E.A. (1984). Infant-mother attachment: Factors related to its development and changes over time. Child development, 55, 753-771.
- Epstein, S. (1973). The self-concept revisited or a theory of a theory. American psychologist, 28, 404-416.
- Epstein, S. (1979). Natural healing processes of the mind: 1. Acute schizophrenic disorganization. Schizophrenia bulletin, 5, 315-321.
- Epstein, S. (1980). The self-concept: A review and the proposal of an integrated theory of personality. In E. Staub (Ed.), Self-esteem and psychotherapy (pp. 82-131). New York: Wiley.
- Everitt, B.S. (1977). The analysis of contingency tables. New York: Halsted Press.
- Fienberg, S.E. (1980). The analysis of cross-classified categorical data. Cambridge, MA: M.I.T. Press.
- Fivush, R., & Slackman, E. (1986). The acquisition and development of scripts. In K. Nelson (Ed.), Event knowledge: Structure and function in development (pp. 71-96). Hillsdale, NJ: Erlbaum.
- French, D. C. (1988). Heterogeneity of peer-rejected boys: Aggressive and nonaggressive subtypes. Child development, 59, 976-985.
- Gaensbauer, T.J. & Harmon, R.J. (1982). Attachment behavior

- in abused/neglected and premature infants. In Emde and R. Harmon (Eds.). Development of attachment and affiliative Systems (pp. 263-279). New York: Plenum Press.
- George, C. & Main, M. (1979). Social interactions of young abused children: Approach, avoidance, and aggression. Child development, 50, 306-318.
- Grossmann, K.E., Grossmann, K., Spangler, G., Suess, G., & Unzer, L. (1985). Maternal sensitivity in northern Germany. Monographs of the Society for Research in Child Development, 50(1-2, Serial No. 209).
- Hart, C.H., Ladd, G.W., & Burleson, B.R. (1990). Children's expectations of the outcomes of social strategies: Relations with sociometric status and maternal disciplinary styles. Child development, 61, 127-137.
- Heller, K.A., & Berndt, T.J. (1981). Developmental changes in the formation and organization of personality attributions. Child development, 52, 683-691.
- Hinde, R.A. (1982). Attachment: Some conceptual and biological issues. In C. Parkes and J. Stevenson-Hinde (Eds.), The place of attachment in human behavior (pp. 60-76). New York: Basic Books.
- Izard, C.E. (1978). Emotions as motivations: An evolutionary-developmental perspective. In R.A. Dienstbier (Ed.), Nebraska Symposium on Motivation. 163-200. Lincoln, NE: University of Nebraska Press.
- Kadushin, A. & Martin, J. (1981). Child Abuse: An Interactional Event. New York: Columbia University Press.

- Kaplan, N., & Main, M. (1985). Internal representations of attachment at six-years as indicated by family drawings and verbal responses to imagined separations. In M. Main (Chair), Attachment: A move to the level of representation. Symposium at Society for Research in Child Development, Toronto.
- Krazier, S.K., Fryer, G.E., & Miller, M. (1988). Programming for preventing sexual abuse and abduction: What does it mean when it works? Child Welfare League of America, 67(1), 69-78.
- Lamb, M.E., Thompson, R.A., Gardner, W.P., Charnov, E.L., & Estes, D. (1984). Security of infantile attachment as assessed in the "strange situation": Its study and biological interpretation. The behavioral and brain sciences, 7, 127-171.
- Lewis, M., Feiring, C., McGuffog, C., & Jaskir, J. (1984). Predicting psychopathology in six-year-olds from early social relations. Child development, 55, 123-136.
- Lieberman, A.F. & Pawl, J.H. (1988). Clinical applications of attachment theory. In J. Belsky and T. Nezworski (Eds.), Clinical implications of attachment (pp. 327-351). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Main, M. & Cassidy, J. (1988). Categories of response to reunion with the parent at age 6: Predictable from infant attachment classifications and stable over a 1-month period. Developmental psychology, 24(3), 415-426.
- Main, M., Kaplan, N., & Cassidy, J. (1985). Security in

- infancy, childhood, and adulthood: A move to the level of representation. Monographs of the Society for Research in Child Development, 50(1-2, Serial No. 209).
- Main, M. & Stadtman, J. (1981). Infant response to rejection of physical contact by the mother. American academy of child psychiatry, 292-307.
- Mandler, J.H. (1979). Categorical and schematic organization in memory. In C.R. Puff (Ed.), Memory organization and structure (pp. 259-299). New York: Academic Press.
- Marvin, R.S. (1977). An ethological-cognitive model for the attenuation of mother-child attachment behavior. In T.M. Alloway, L. Krames, and P. Pliner (Eds.), Advances in the study of communication and affect. Vol. 3, Attachment behavior (pp. 25-60). New York: Plenum Press.
- Maslin, C., & Bates, E. (1983). Precursors of anxious and secure attachment: A multivariate model at age six months. Symposium conducted at the biennial meeting of the Society for Research in Child Development, Detroit.
- Matas, L., Arend, R.A., & Sroufe, L.A. (1978). Continuity of adaptation in the second year: The relationship between quality of attachment and later competence. Child development, 49, 547-556.
- Older, J. (1981). A restoring touch for abusing families. Child abuse and neglect, 5, 487-489.
- Park, K.A. & Waters, E. (1989). Security of attachment and preschool friendships. Child development, 60, 1076-1081.
- Parke, R., & Slaby, R. (1983). The development of

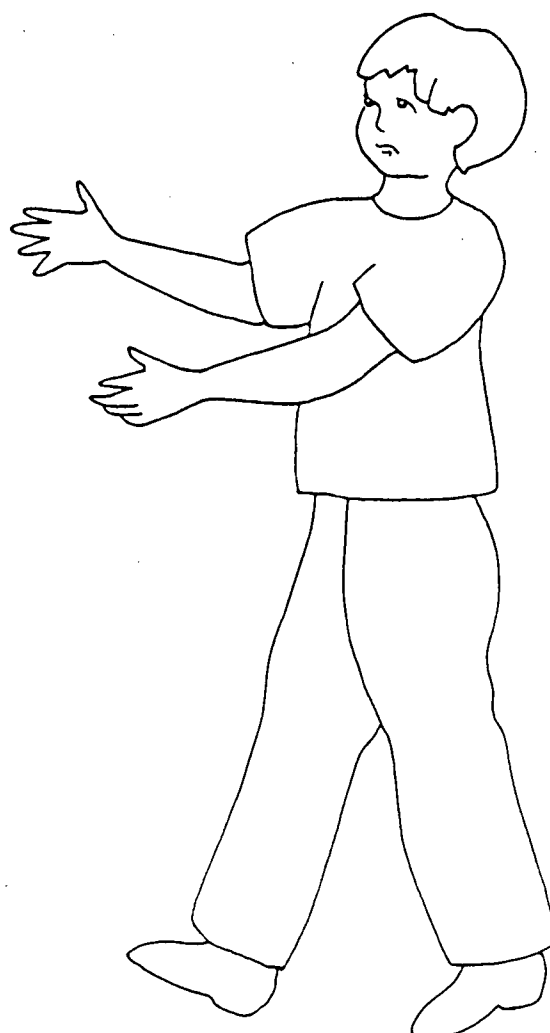
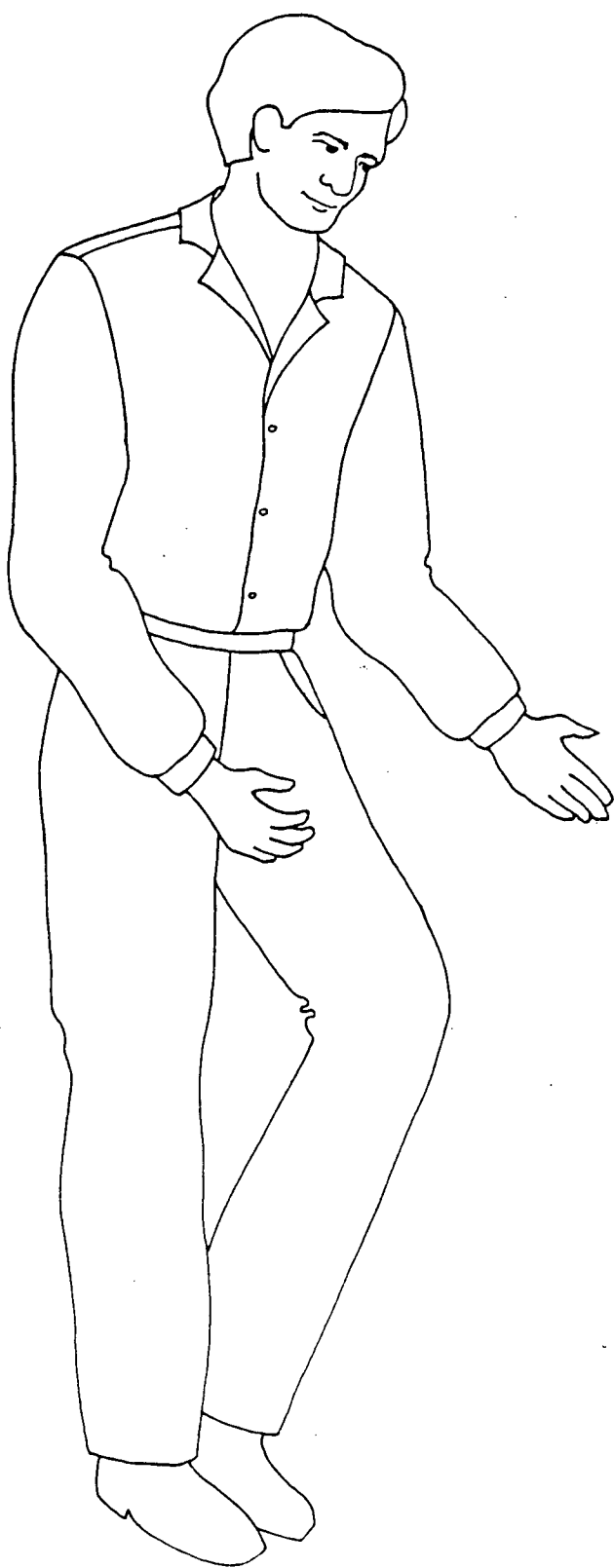
- aggression. In M. E. Hetherington (Ed.), Handbook of child psychology: Socialization, personality, and social development (pp. 547-641). 4, New York: Wiley.
- Pastor, D.L. (1981). The quality of mother-infant attachment and its relationship to toddlers' initial sociability with peers. Developmental psychology, 17(3), 326-335.
- Patterson, G.R., DeBaryshe, B.D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. American psychologist, 44, 329-335.
- Pelton, L. (1977). Child abuse and neglect and protective intervention in Mercer County, New Jersey. Bureau of Research, New Jersey Division of Youth and Family Services.
- Piaget, J. (1924). The language and thought of the child. New York: Harcourt, Brace.
- Piaget, J. (1952). The origin of intelligence in children. New York: International Universities Press.
- Piaget, J. (1954). The construction of reality in the child. New York: Basic Books.
- Piaget, J. & Inhelder, B. (1948). The child's conception of space. New York: Humanities Press.
- Reider, C. & Cicchetti, D. (1989). Organizational perspective on cognitive control functioning and cognitive-affective balance in maltreated children. Developmental psychology, 25(3), 382-393.
- Rholes, W.S. & Ruble, D.N. (1984). Children's understanding of dispositional characteristics of others. Child

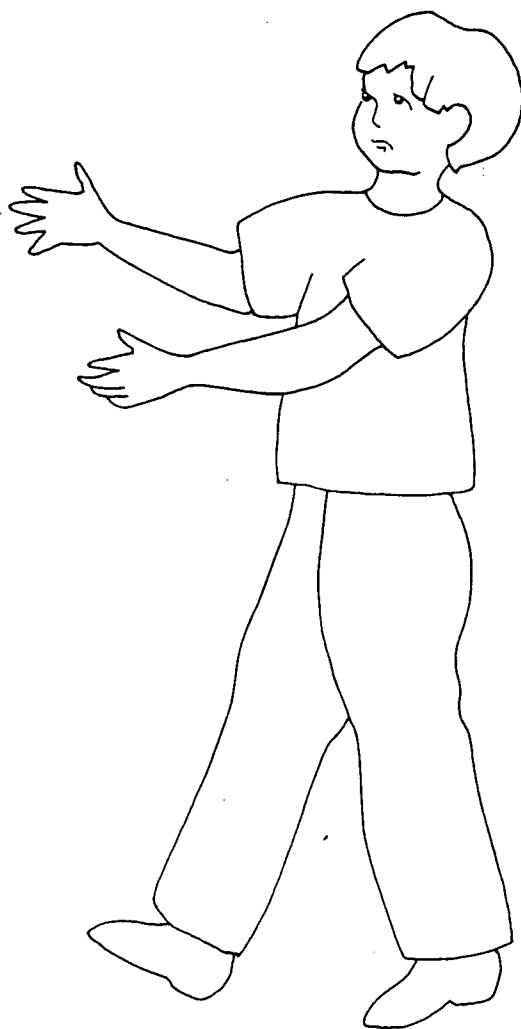
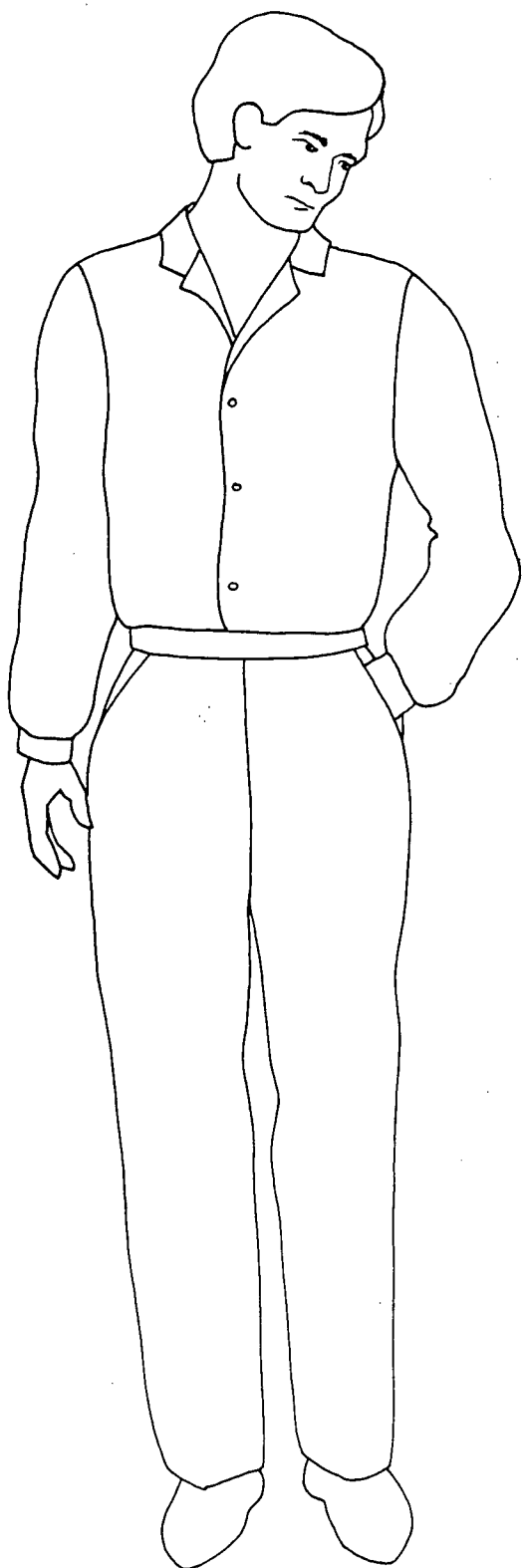
- development, 55, 550-560.
- Ricks, M.H. (1985). The social transmission of parental behavior: Attachment across generations. Monographs of the Society for Research in Child Development. 50(1-2, Serial No. 209).
- Schank, R.C. (1982). Dynamic memory: A theory of reminding and learning in computers and people. Cambridge: Cambridge University Press.
- Schneider-Rosen, K., Braunwalk, K.G., Carlson, V., & Cicchetti, D. (1985). Current perspectives in attachment theory: Illustration from the study of maltreated infants. Monographs of the Society For Research in Child Development. 50(1-2, Serial No. 209).
- Shaver, P., Hazan, C., & Bradshaw, D. (1988). Love as attachment: The integration of three behavioral systems. In M. Barnes (Ed.), The psychology of love (pp. 68-99). New Haven: Yale University Press.
- Simons, R.L., Whitbeck, L.B., Conger, R.D., & Chyi-In, W. (1991). Intergenerational transmission of harsh parenting. Developmental psychology, 27(1), 159-171.
- Slade, A. (1987). Quality of attachment and early symbolic play. Developmental psychology, 23(1), 78-85.
- Spieker, S.J. & Booth, C.L. (1988). Maternal antecedents of attachment quality. In J. Belsky and T. Nezworski (Eds.), Clinical implications of attachment (pp. 95-135). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Sroufe, L.A. (1979). Socioemotional development in infancy.

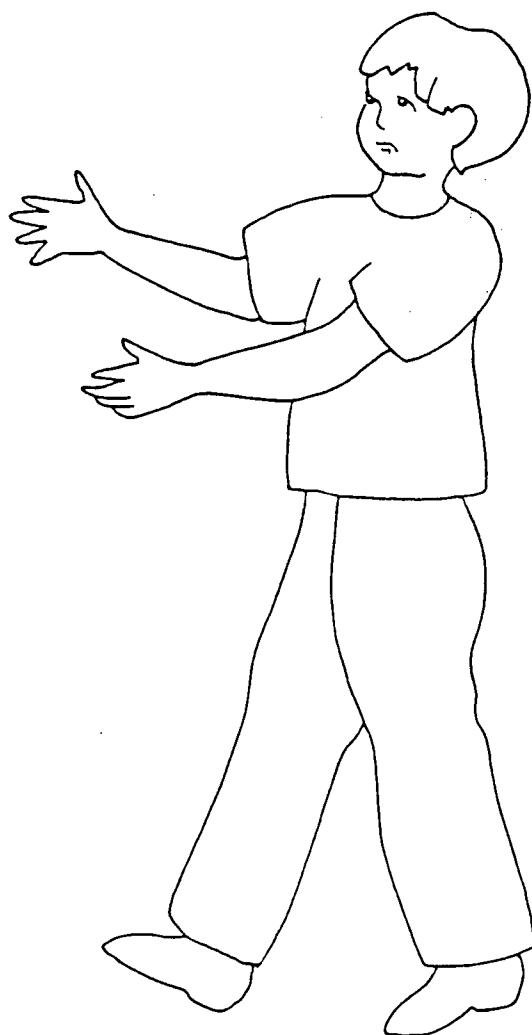
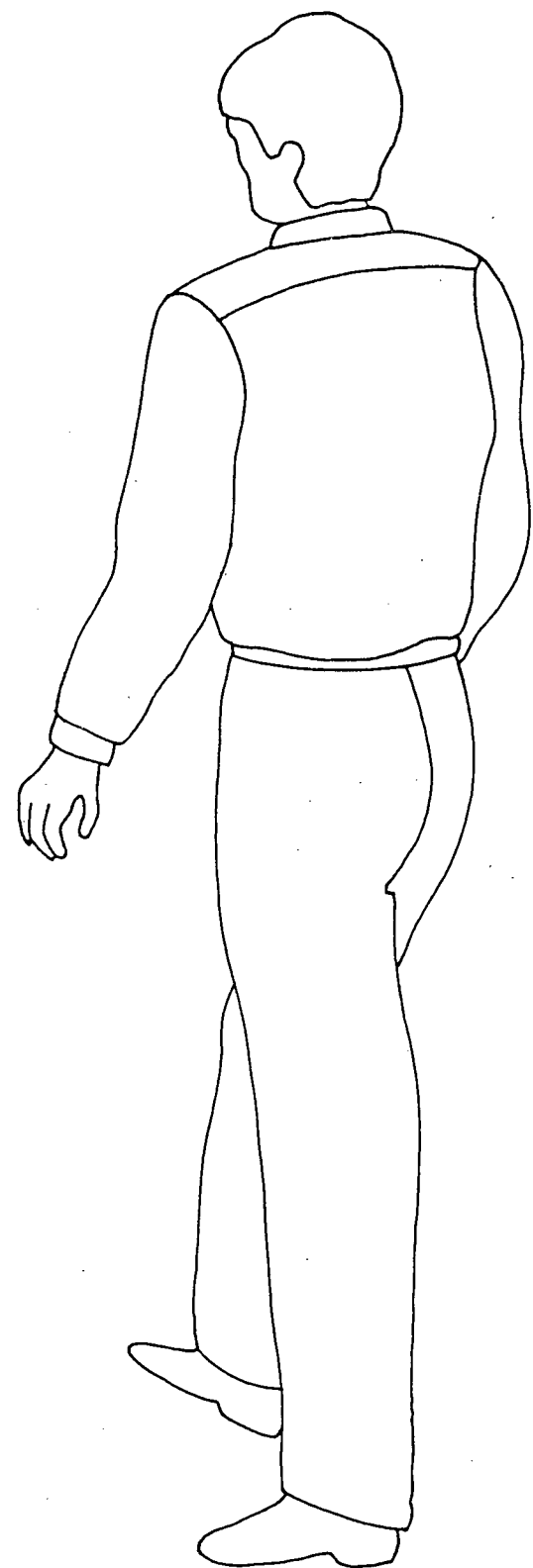
- In J. Osofsky (Ed.), Handbook of infant development (pp. 462-515).
- Sroufe, A. (1983). Infant-caregiver attachment and patterns of adaptation in preschool: The roots of maladaptation and competence. In M. Perlmutter (Ed.), Minnesota Symposia in Child Psychology. Vol. 16 (pp. 41-81). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Sroufe, A. (1986). Appraisal: Bowlby's contribution to psychoanalytic theory and developmental psychology; Attachment: Separation: Loss. Journal of child psychology and psychiatry, 27(6), 841-849.
- Sroufe, A. (1988). The role of infant-caregiver attachment in development. In J. Belsky and T. Nezworski (Eds.), Clinical implications of attachment (pp. 18-38). Hillsdale, NJ: Lawrence Erlbaum Associates Inc.
- Sroufe, L.A., & Fleeson, J. (1986). Attachment and the construction of relationships. In W. Hartup and Z. Rubin (Eds.), Relationships and development (pp. 51-71). New York: Cambridge University Press.
- Straus, M. (1979). Family patterns and child abuse in a nationally representative American sample. Child abuse and neglect, 3, 213-225.
- Summit, R.C. (1984). The impact of child abuse: Psycho-social and educational implications. In S. Leung (Ed.), Mental health and the school (pp.19-40).
- Thompson, R.A., Lamb, M.E., & Estes, D. (1982). Stability of infant-mother attachment and its relationship to changing

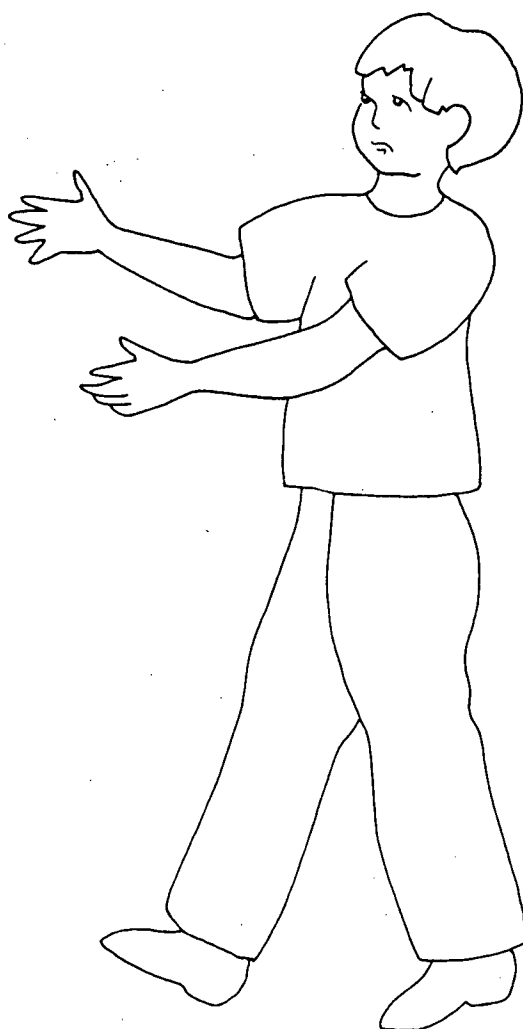
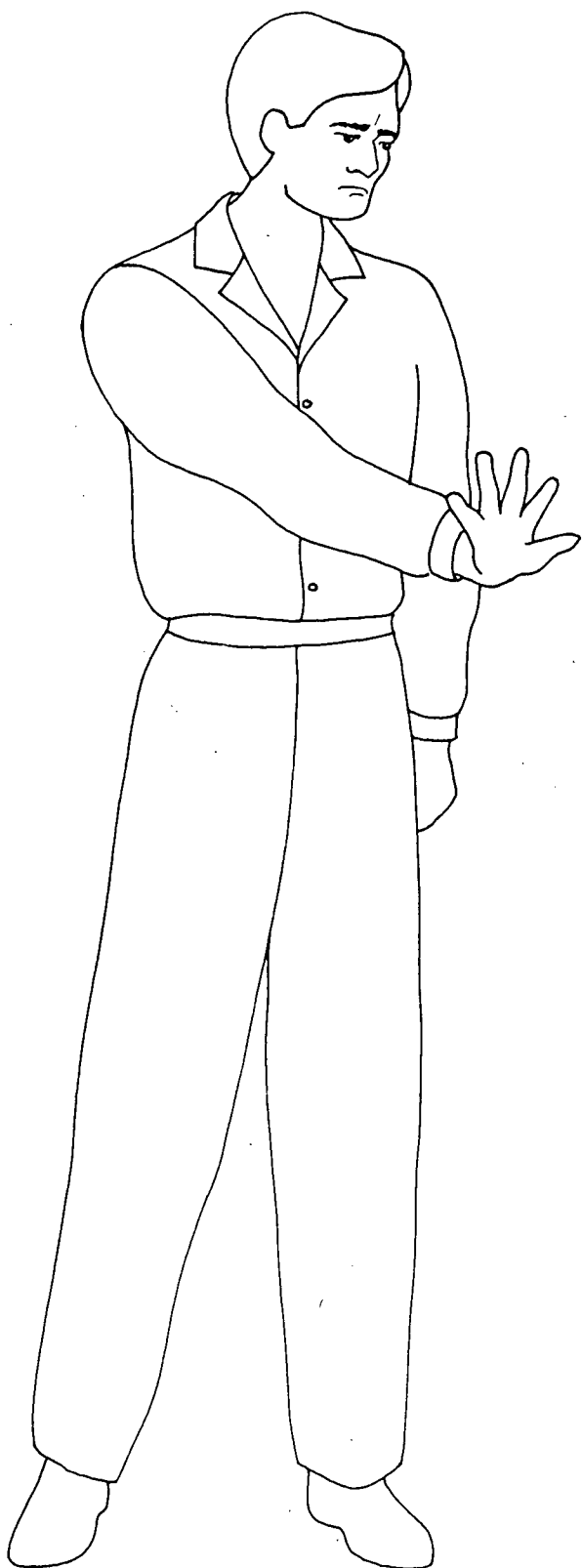
- life circumstances in an unselected middle-class sample. Child development, 53, 144-148.
- Thomson, E.M., Paget, N.W., Bates, D.W., Mesch, M., & Putman, T.I. (1971). Child abuse: A community challenge. New York: Henry Stewart and Childrens Aid Society.
- Tulving, E. (1972). Episodic and semantic memory. In E. Tulving and W. Donaldson (Eds.), Organization of memory (pp. 382-403). New York: Academic Press.
- Tulving, E. (1979). Memory research: What kind of progress? In L.G. Nilsson (Ed.), Perspectives on memory research: Essays in honour of Uppsala University's 500th anniversary (pp. 19-34). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Tulving, E. (1985). How many memory systems are there? American psychologist, 40(4), 385-398.
- Tulving, E. (1989). Remembering and knowing the past. American scientist, July-August, 361-367.
- Vaughn, B., Egeland, B., & Sroufe, A. (1979). Individual differences in infant-mother attachment at twelve and eighteen months: Stability and change in families under stress. Child development, 50, 971-975.
- Waas, G. (1988). Social attributional biases of peer-rejected and aggressive children. Child development, 59, 969-975.
- Zussman, J.U. (1980). Situational determinants of parental behavior: Effects of competing cognitive activity. Child development, 51 792-800.

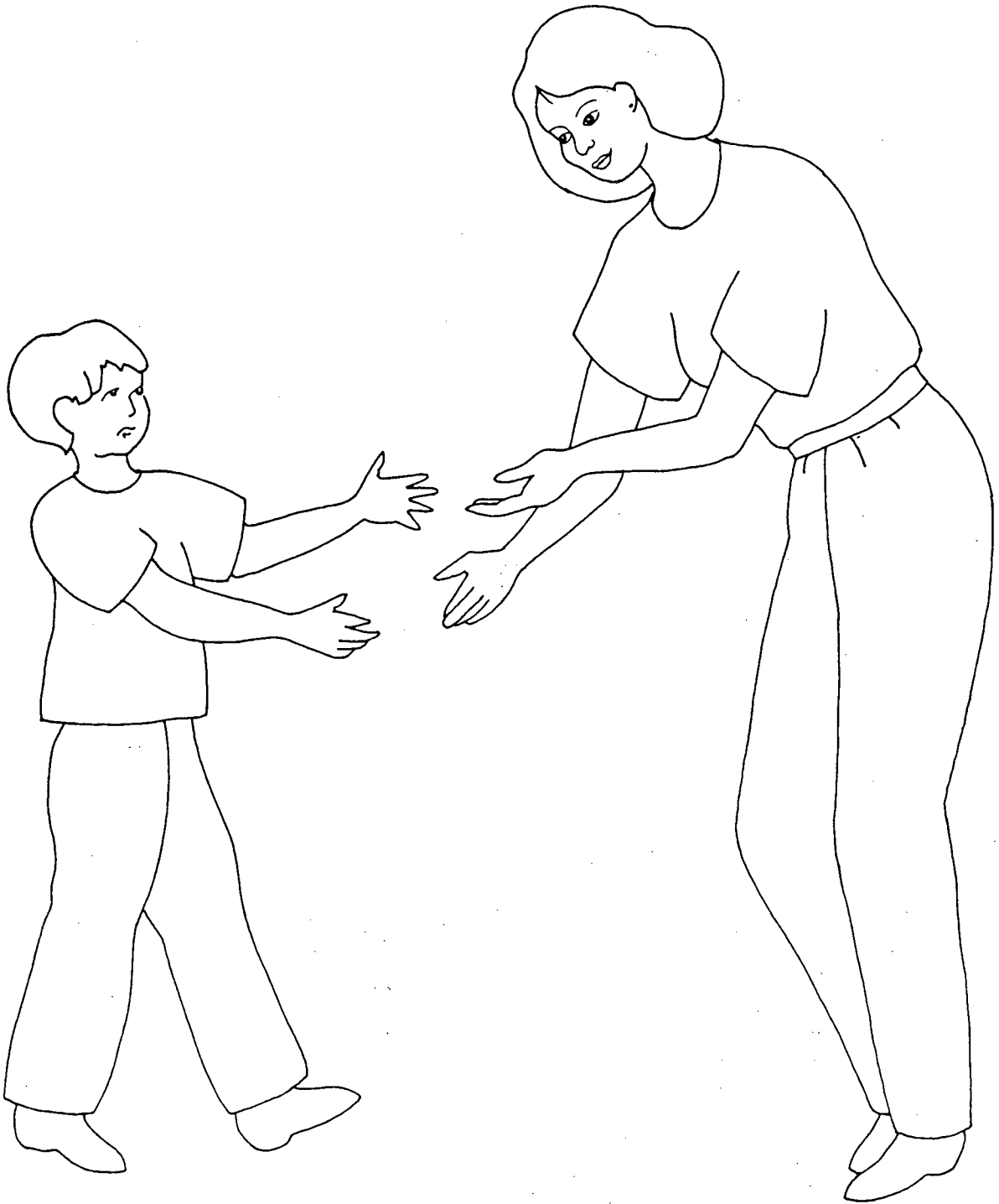
Appendix A: Drawings for
Permitting/Blocking Access Inventory

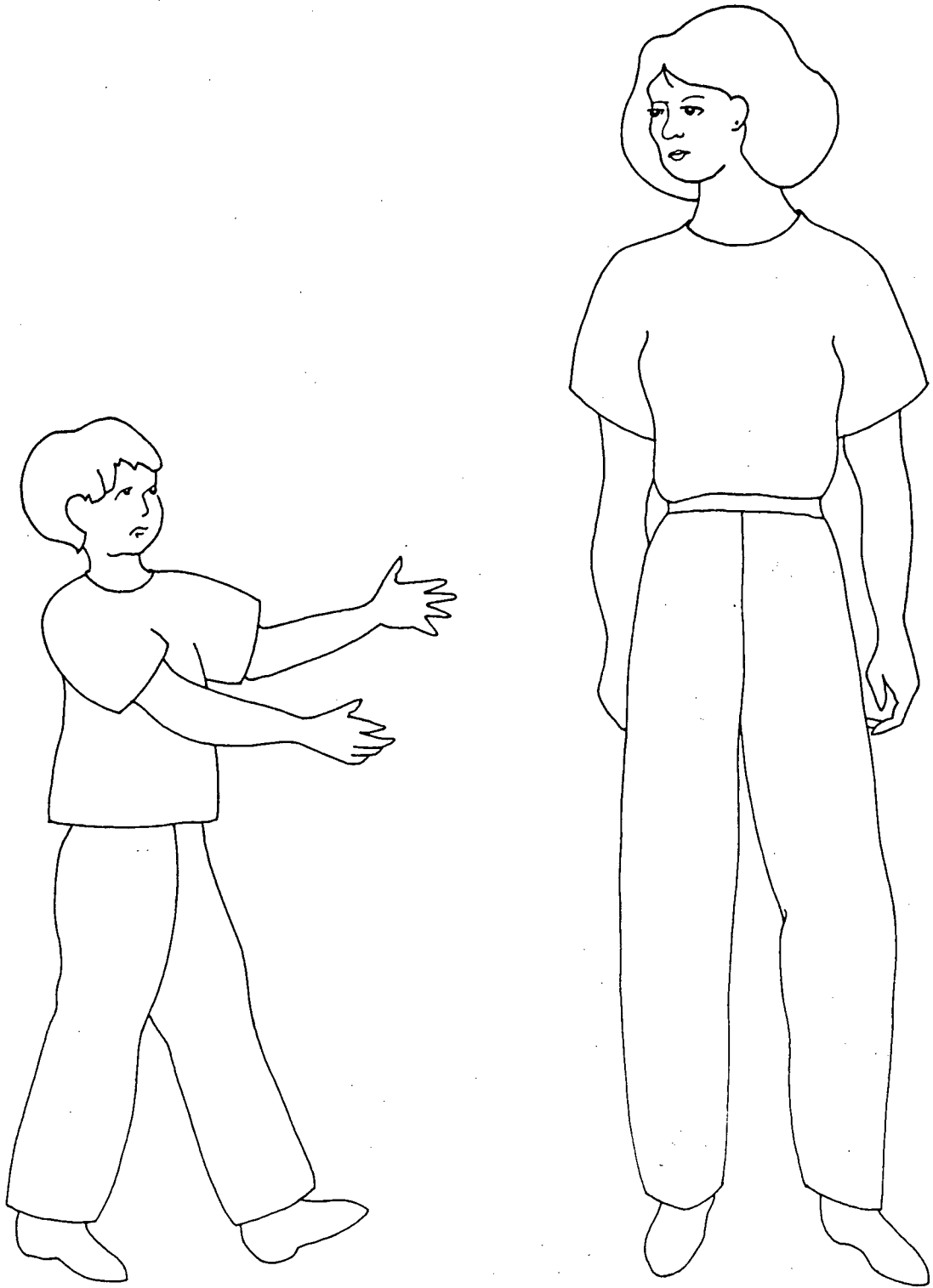


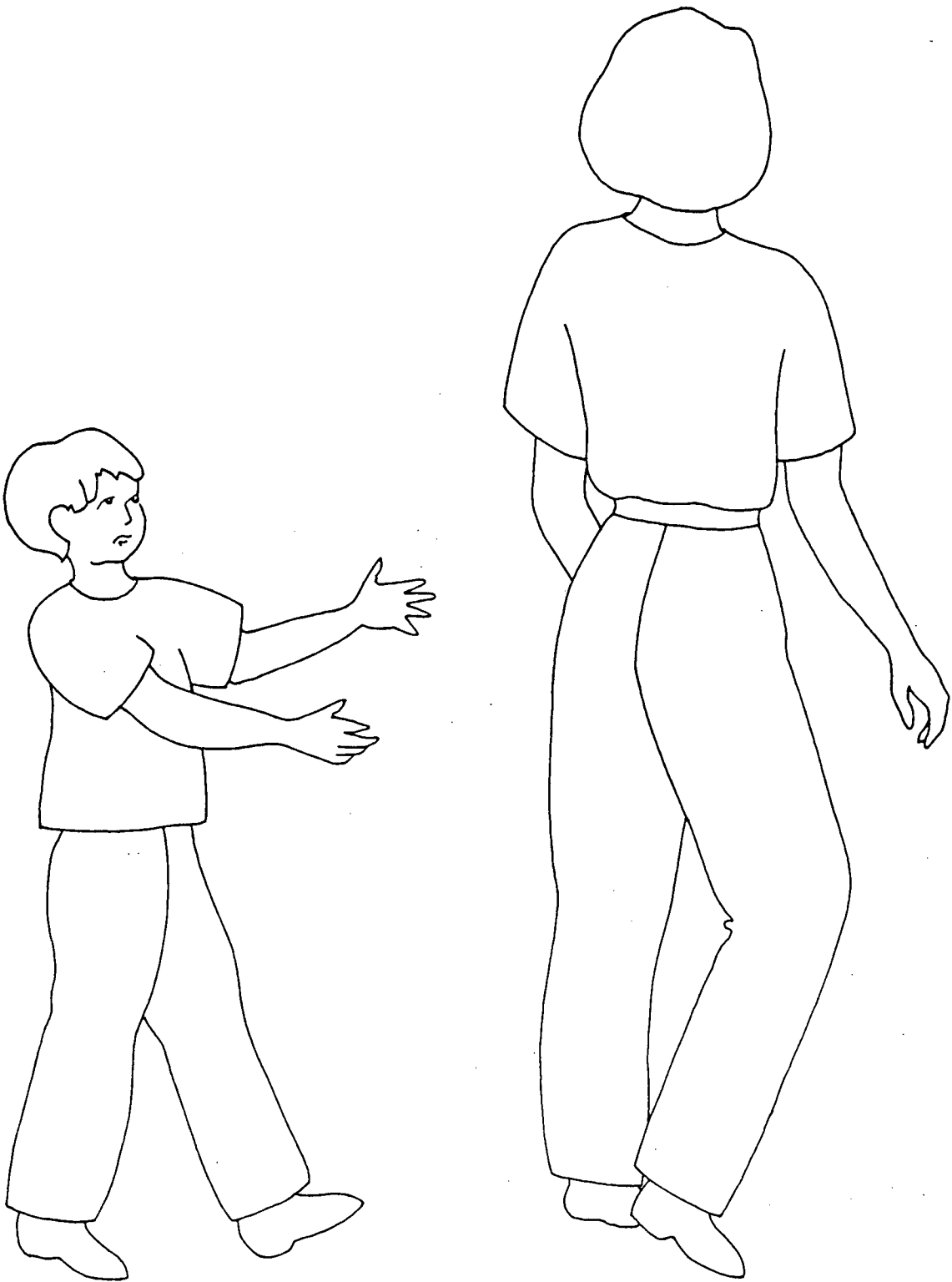


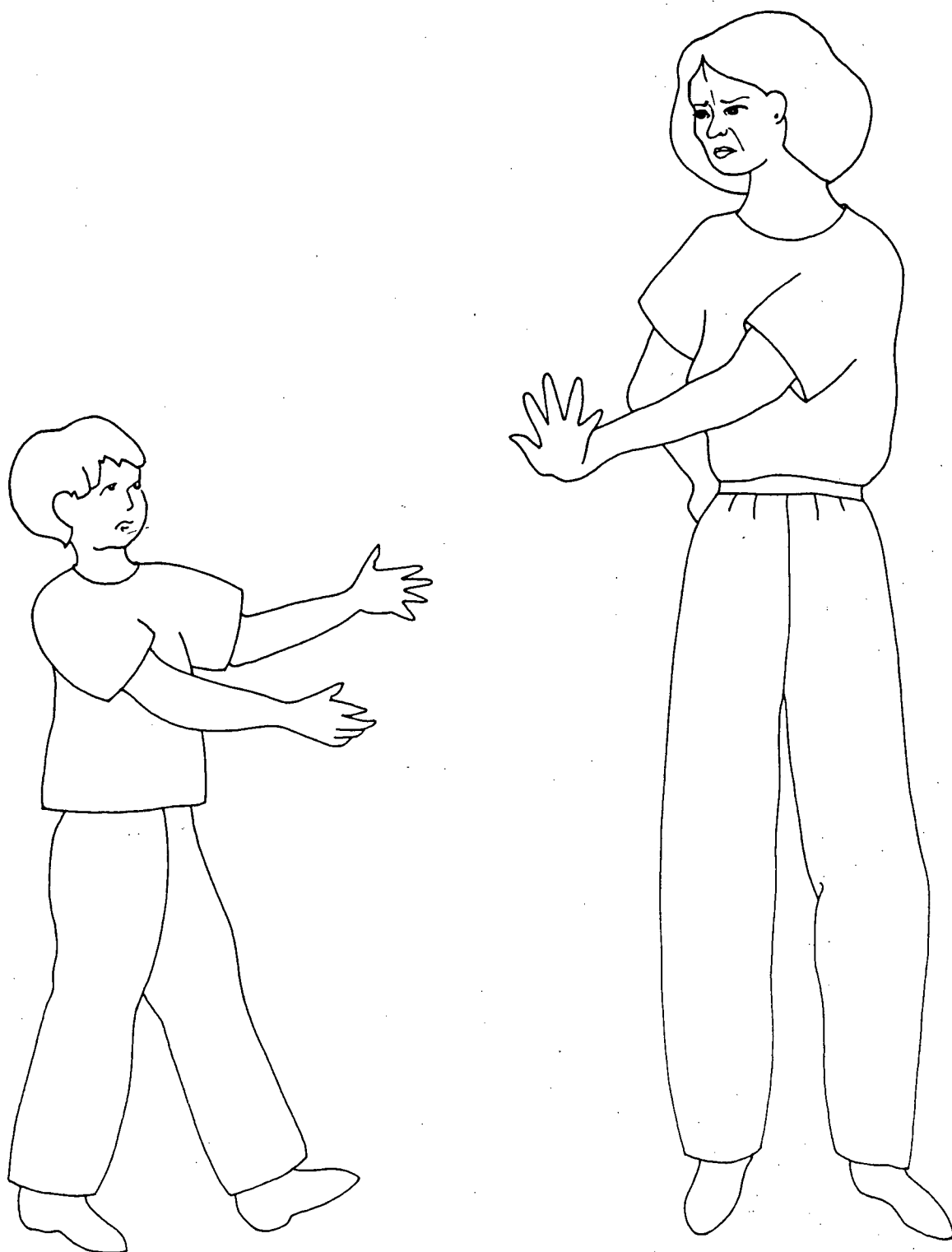


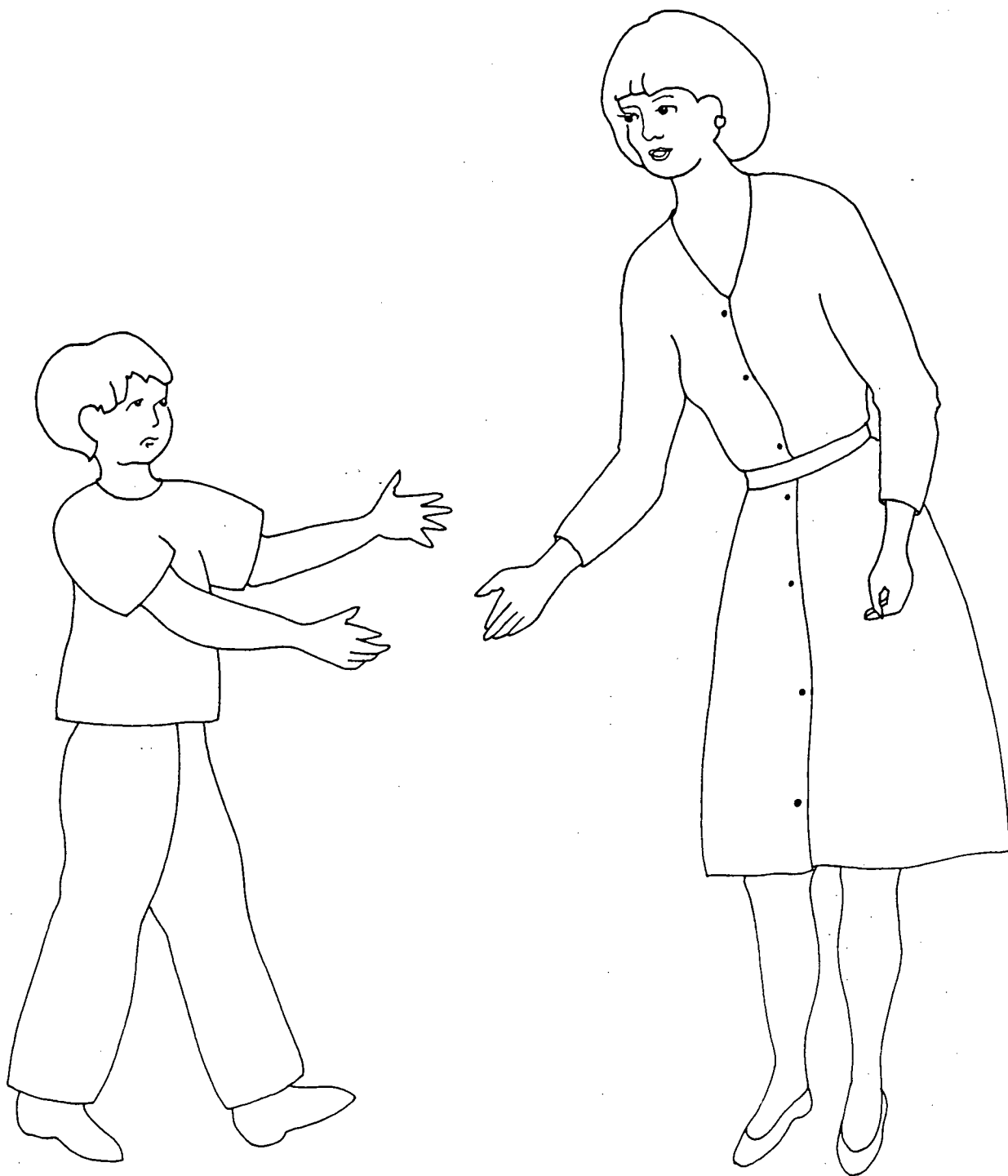


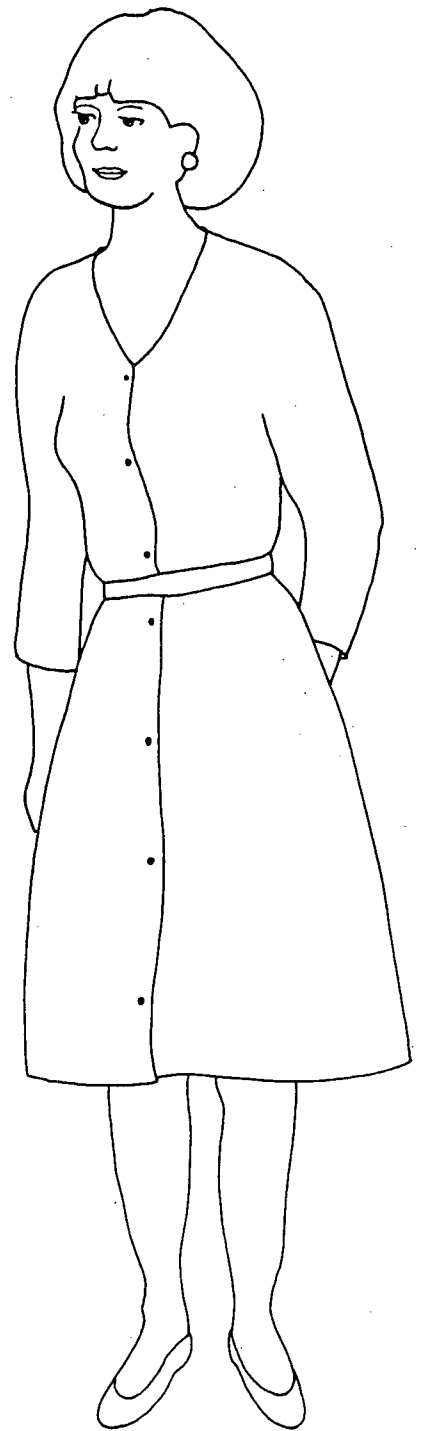
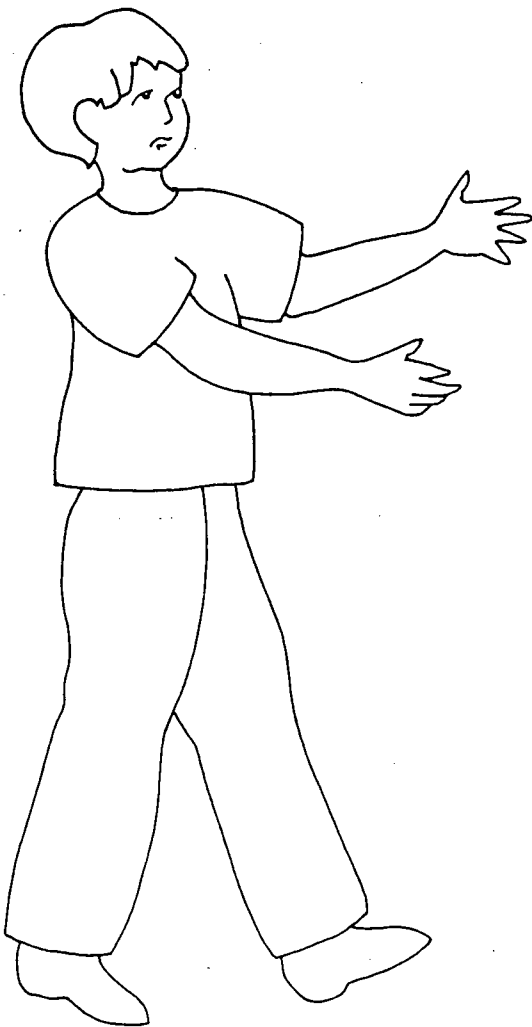


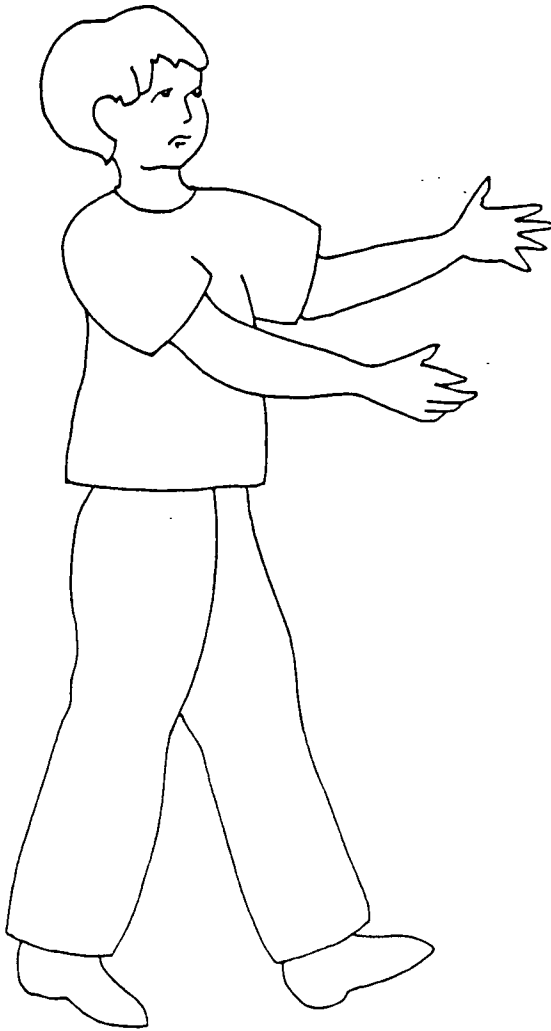


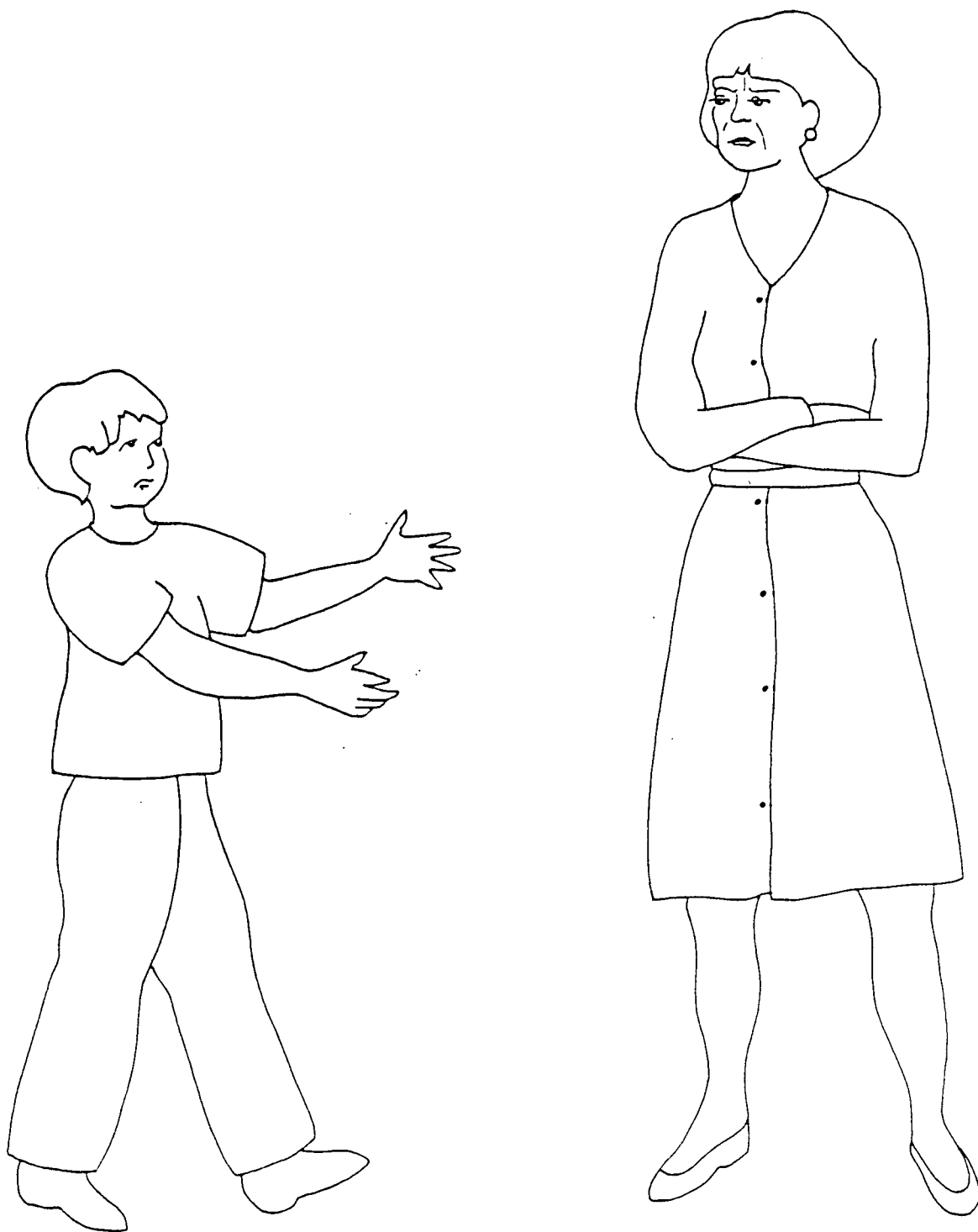


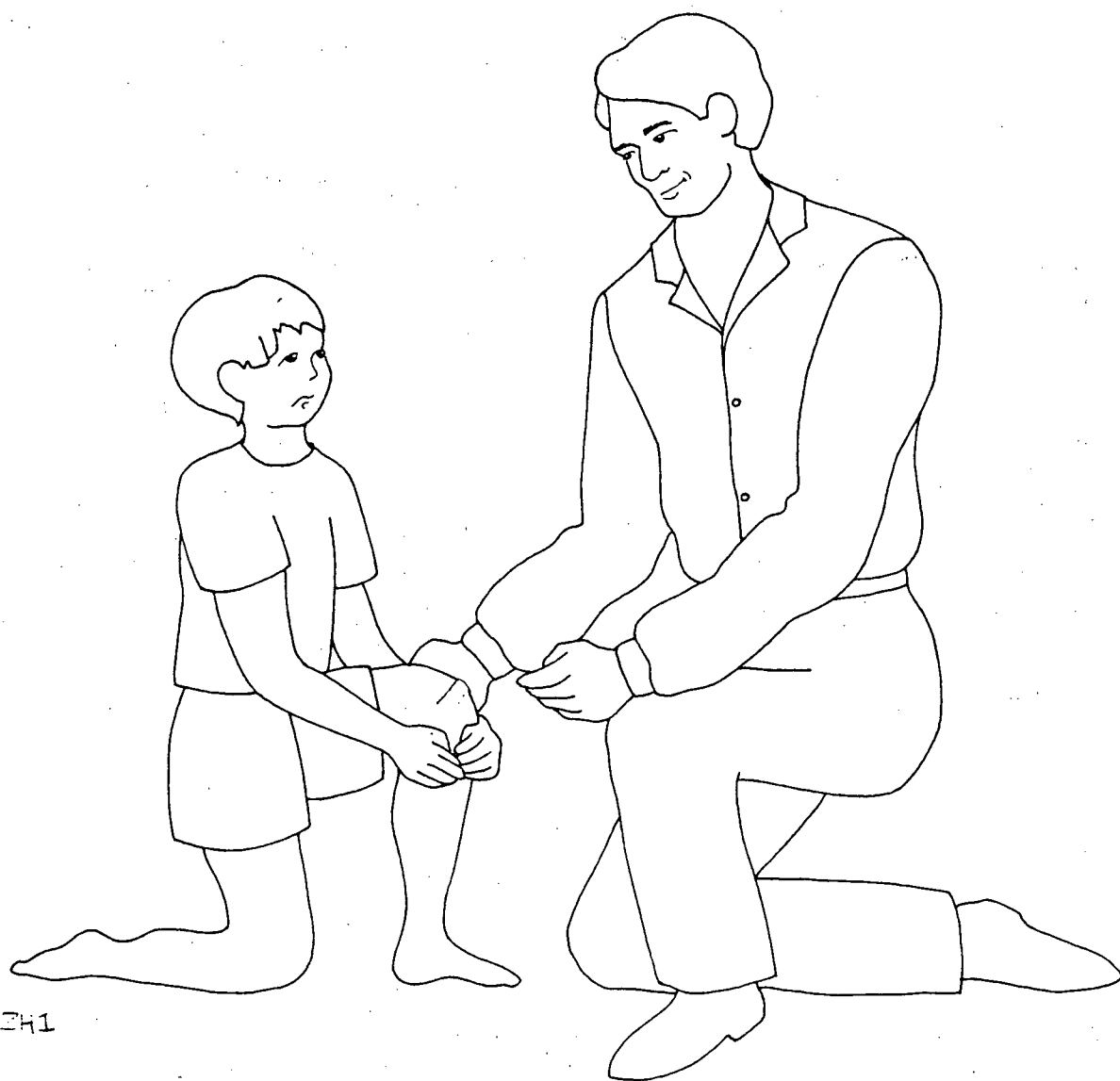




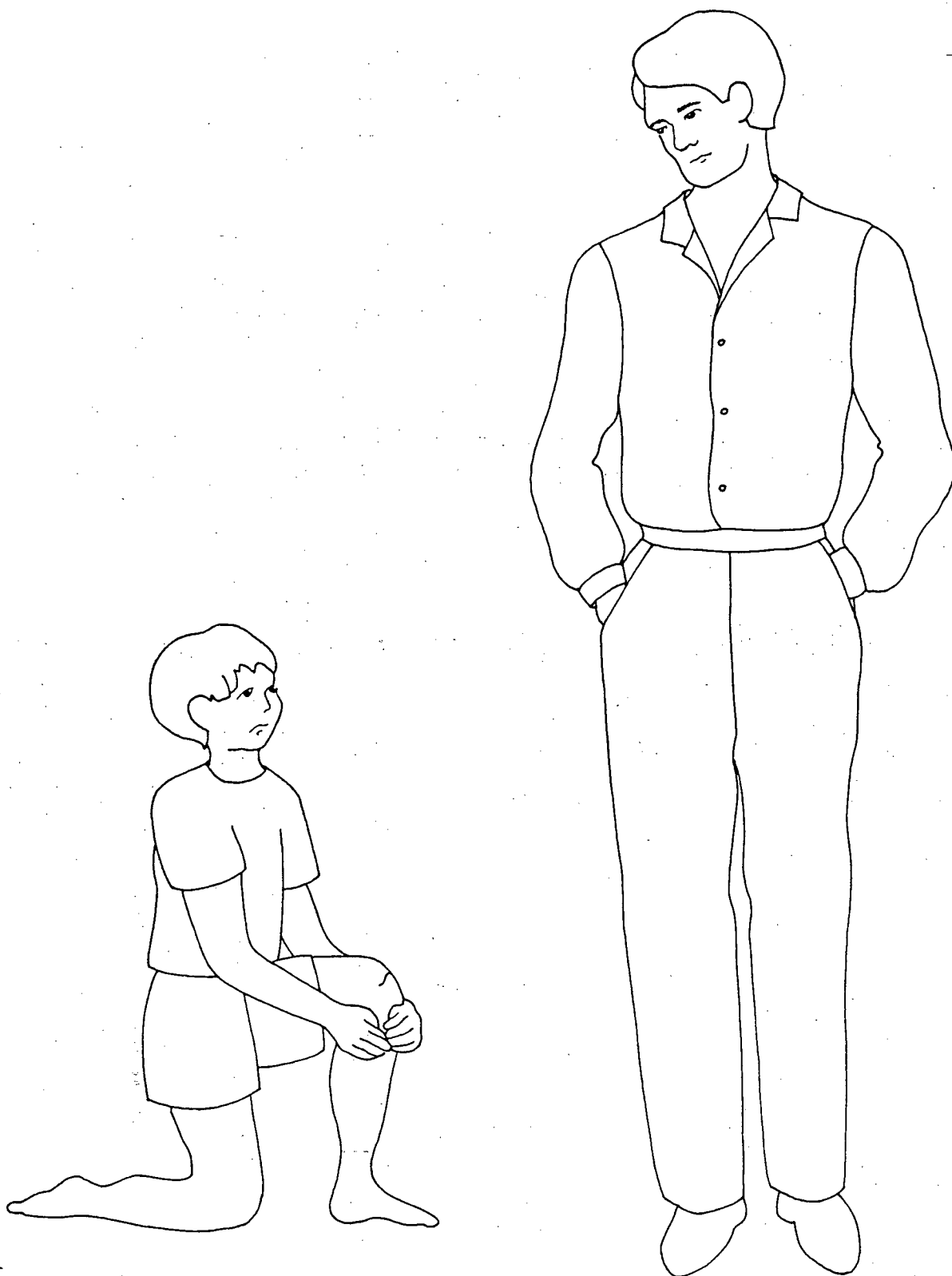


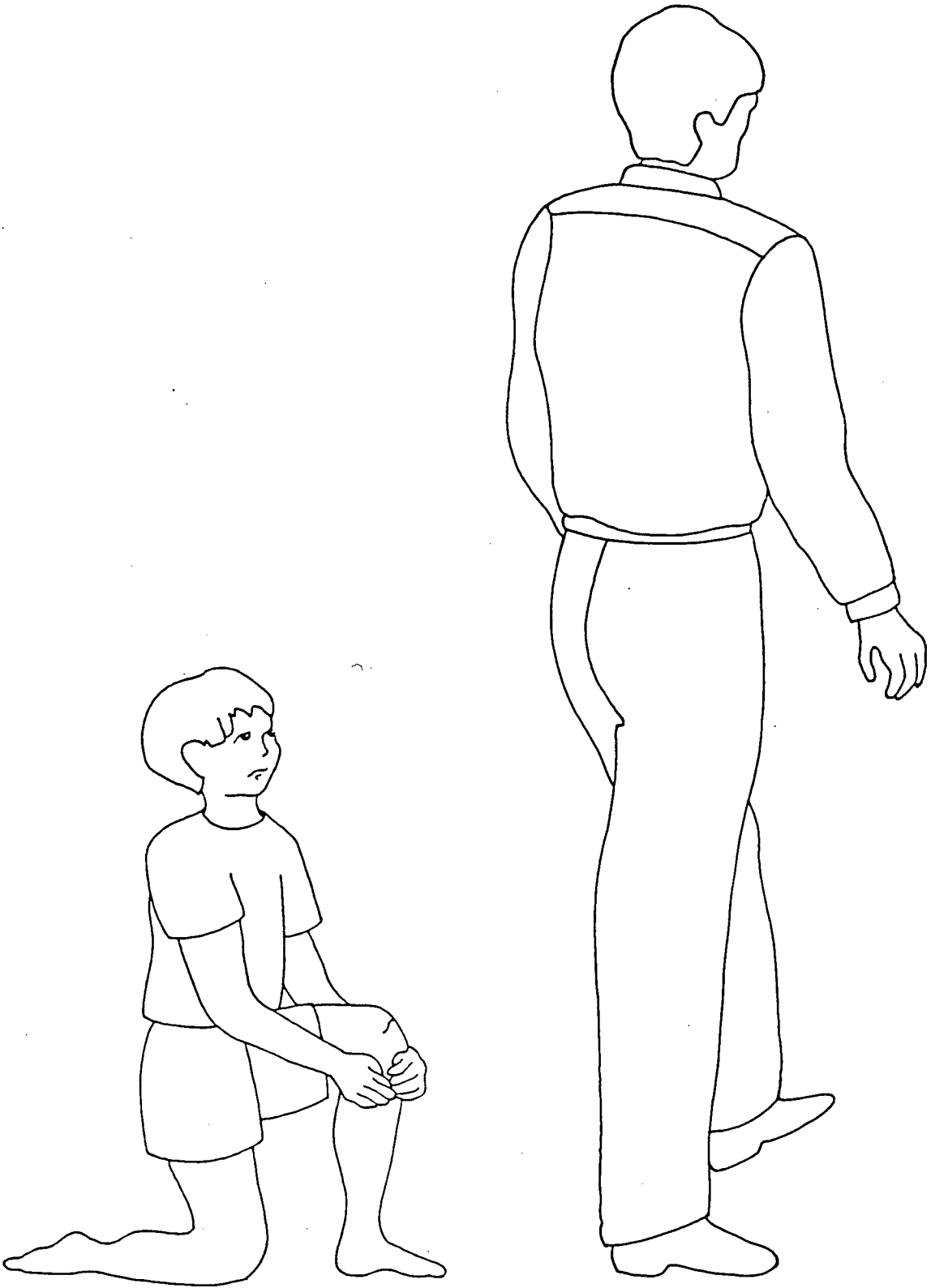




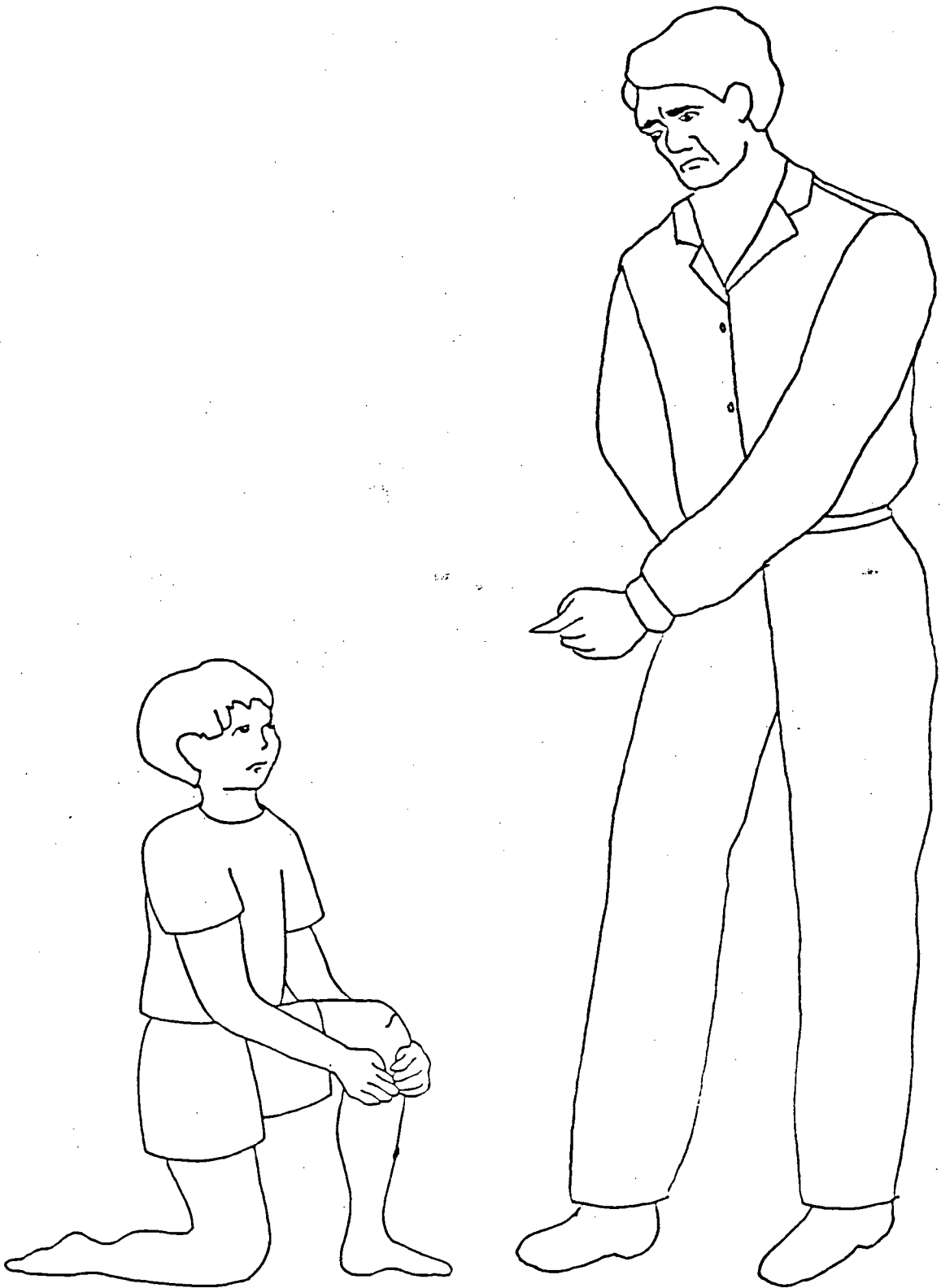


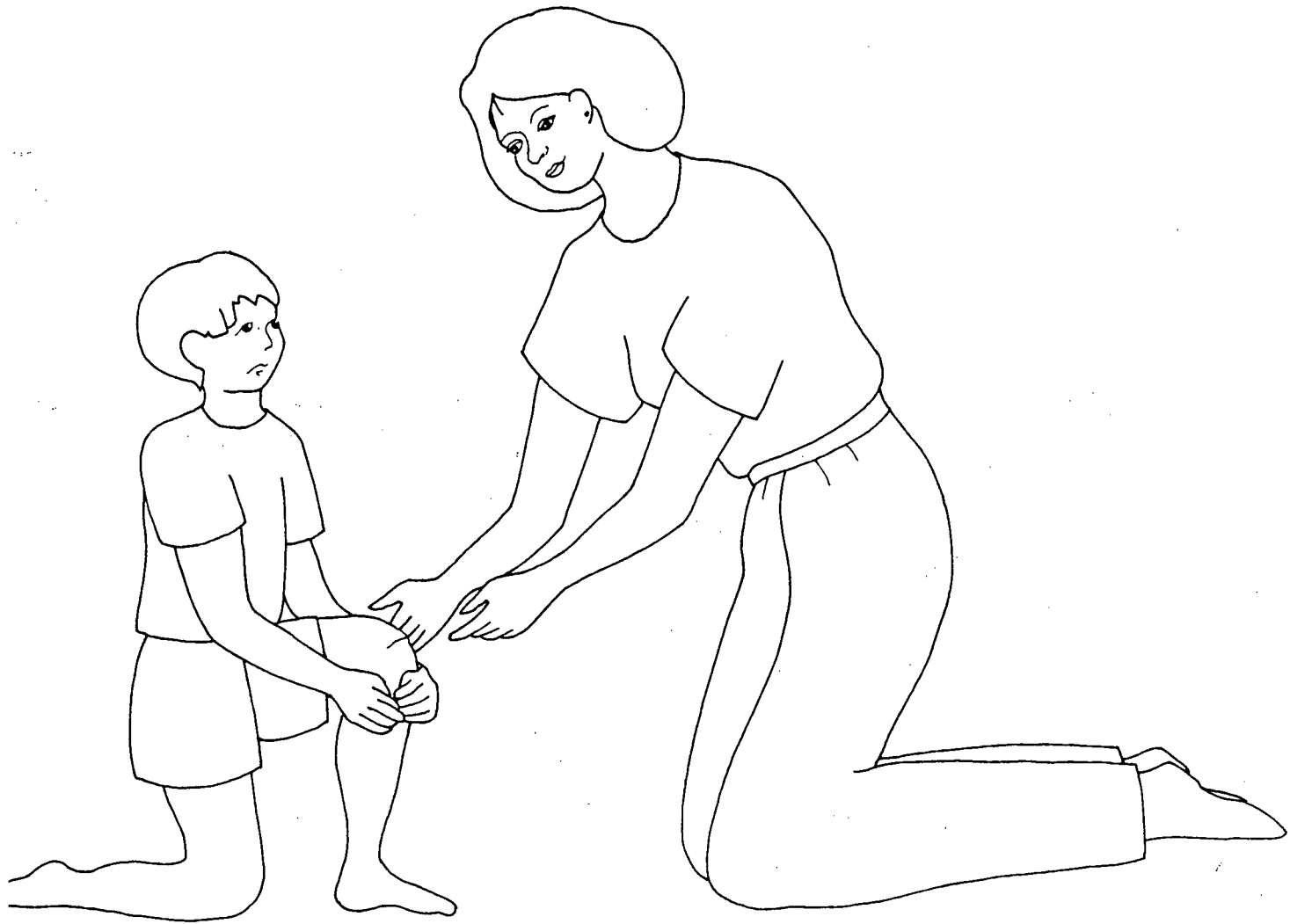
EH1

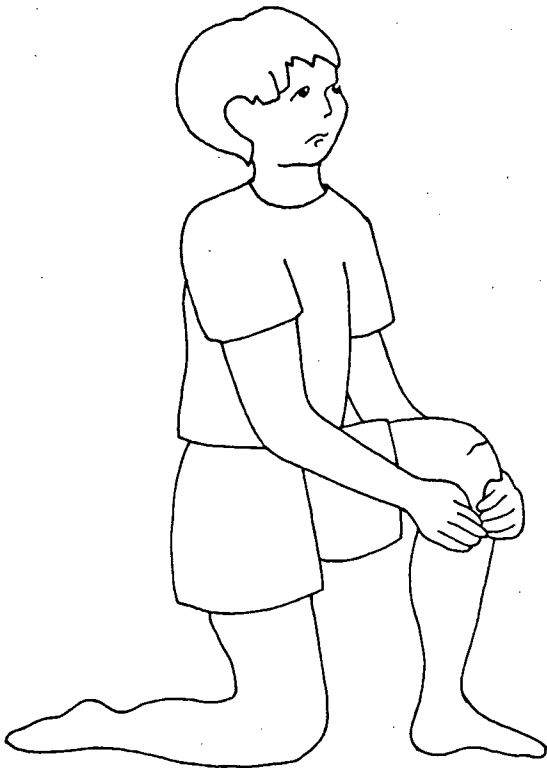
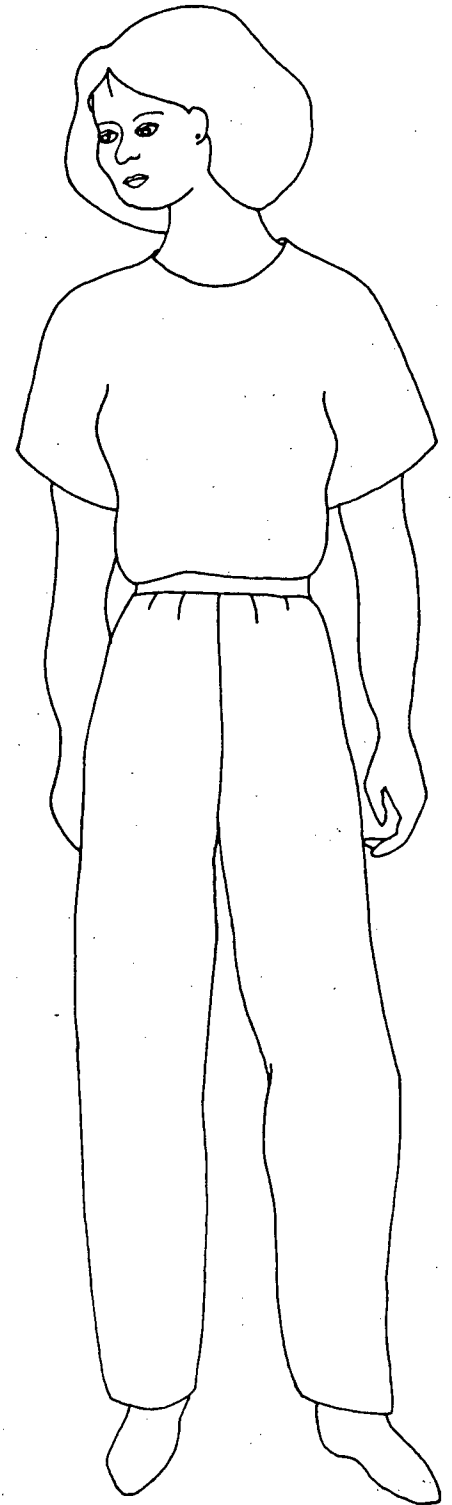


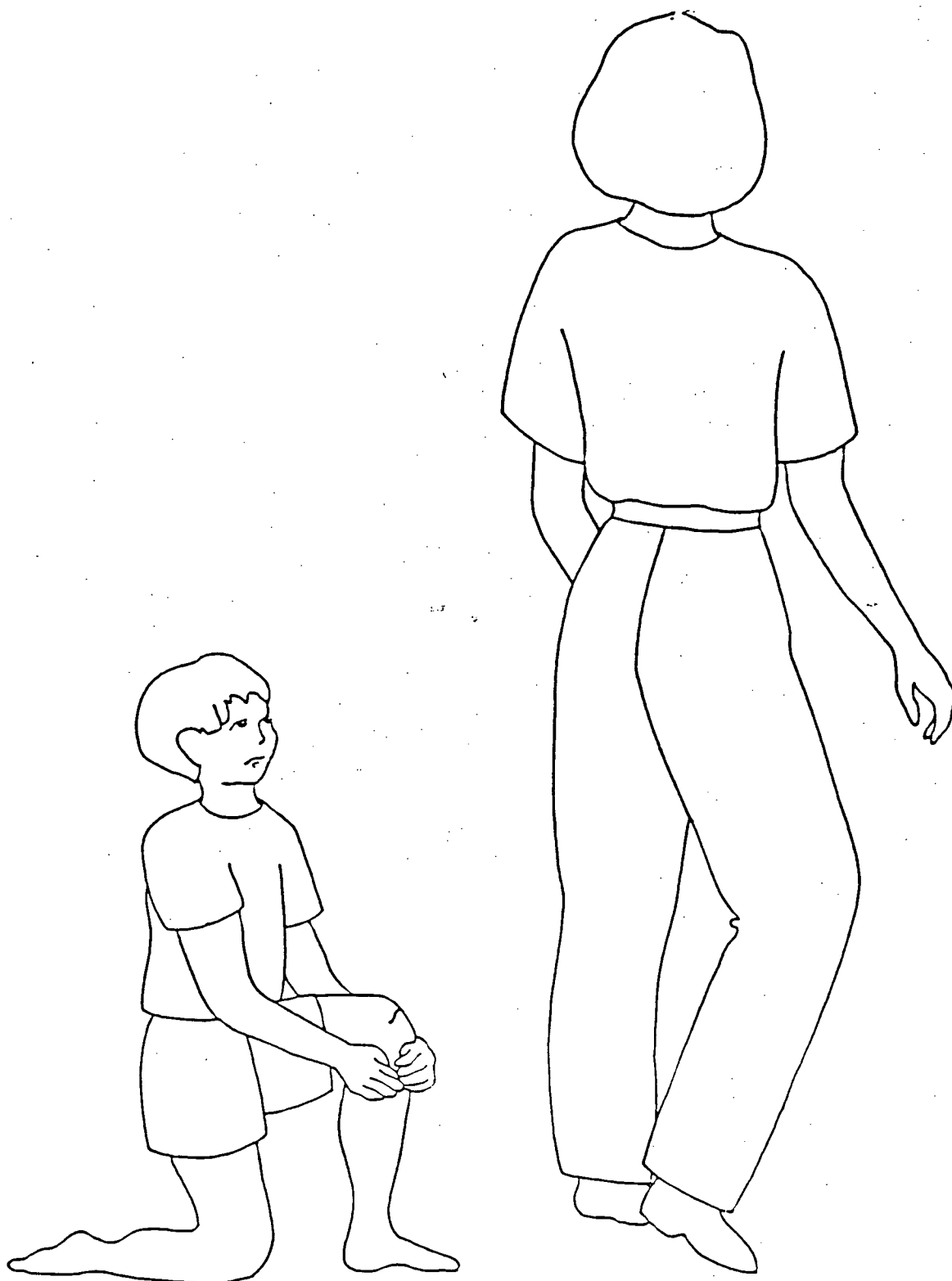


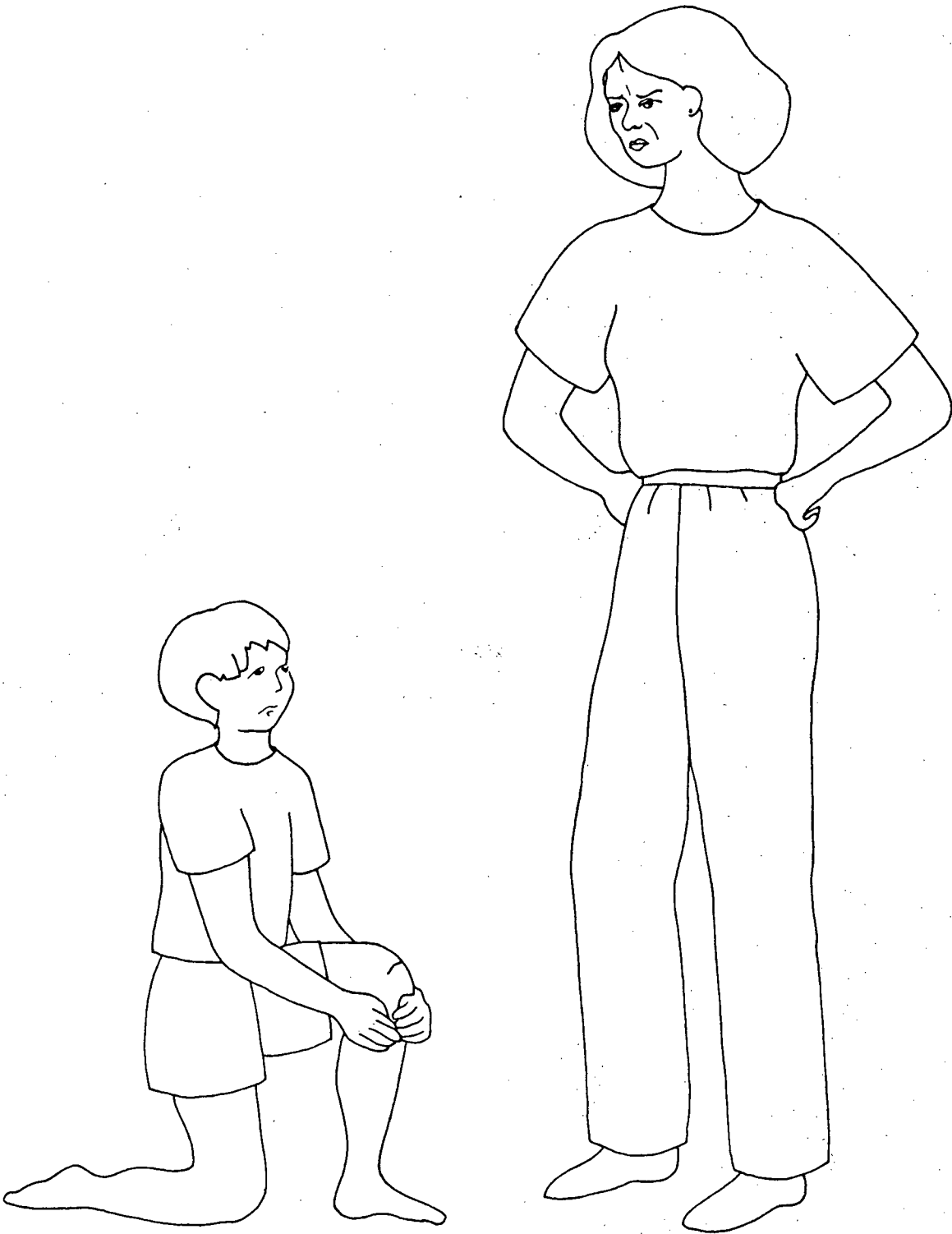
243

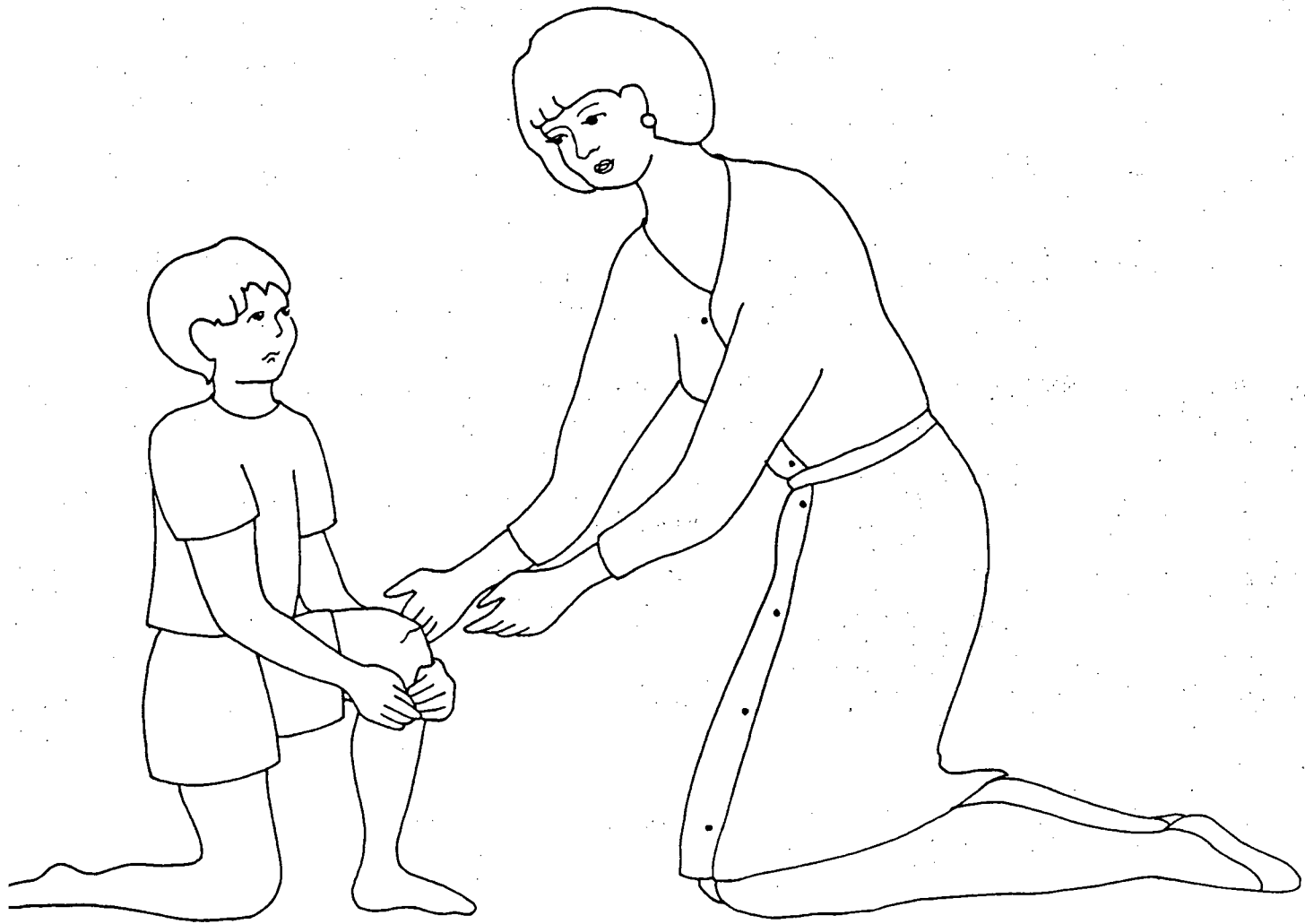


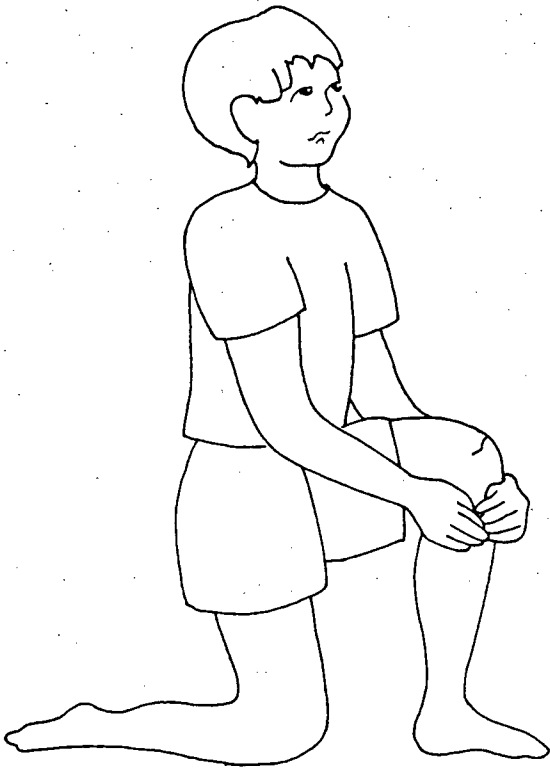




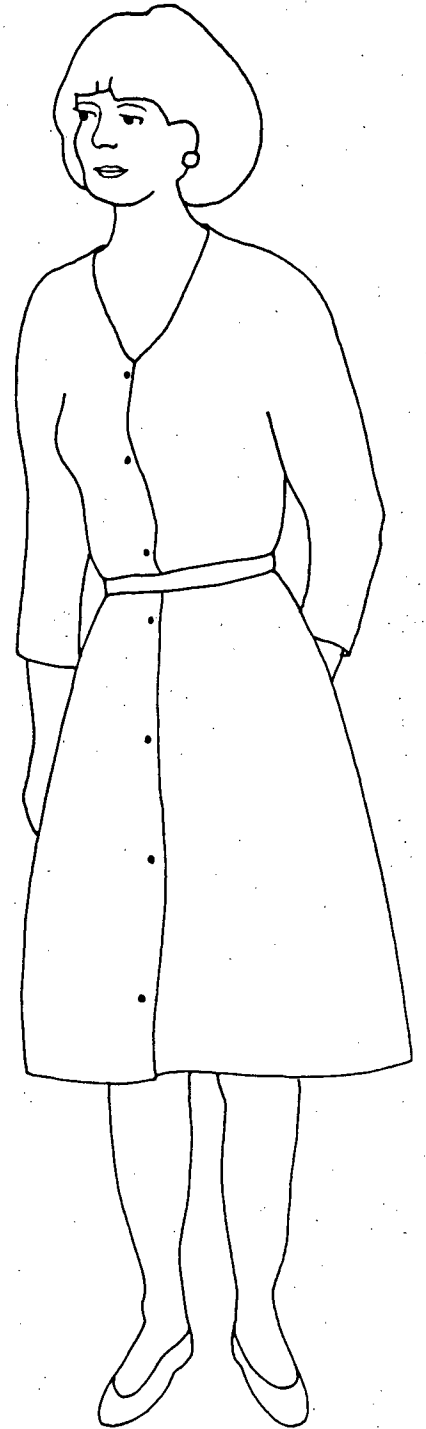


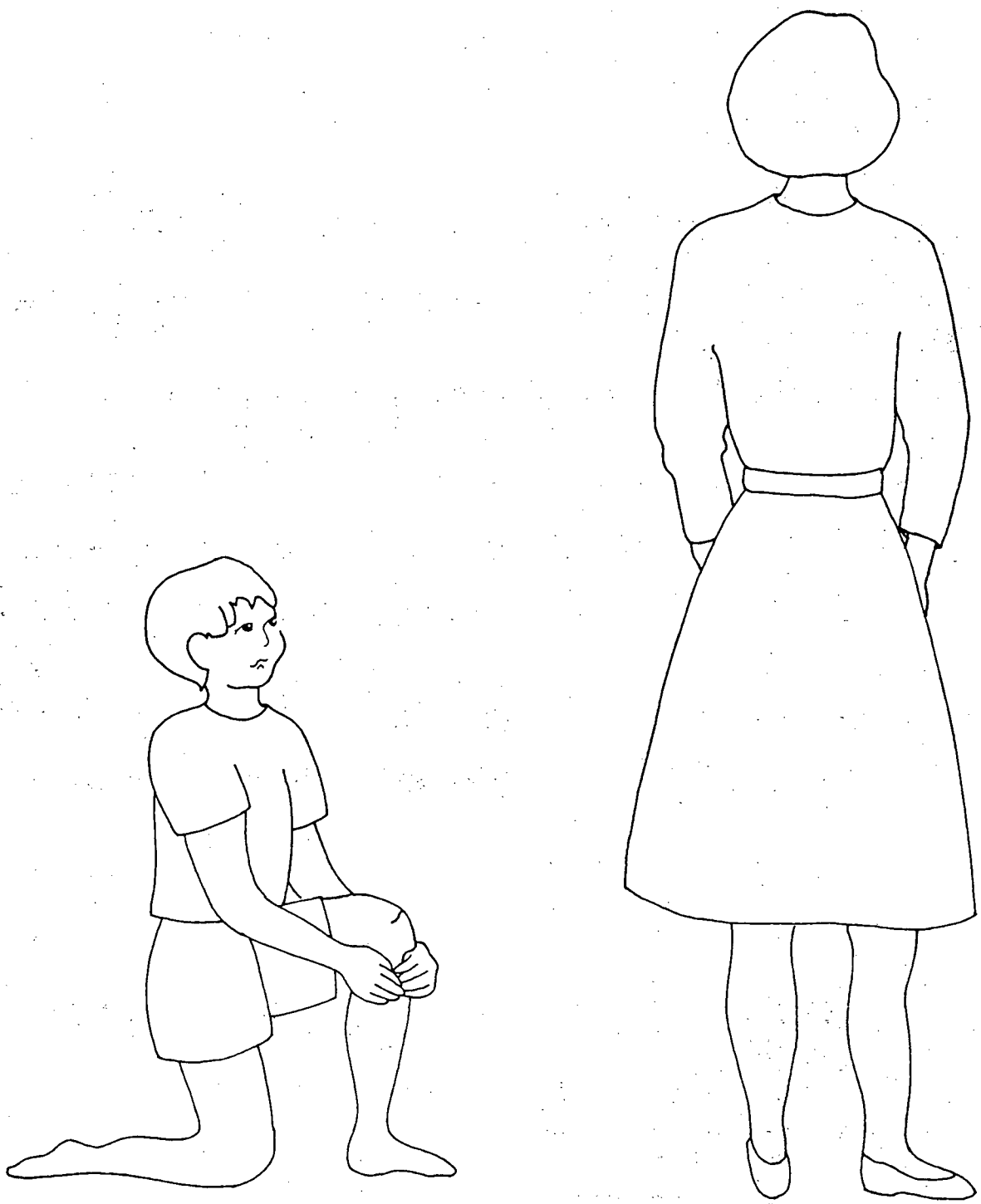




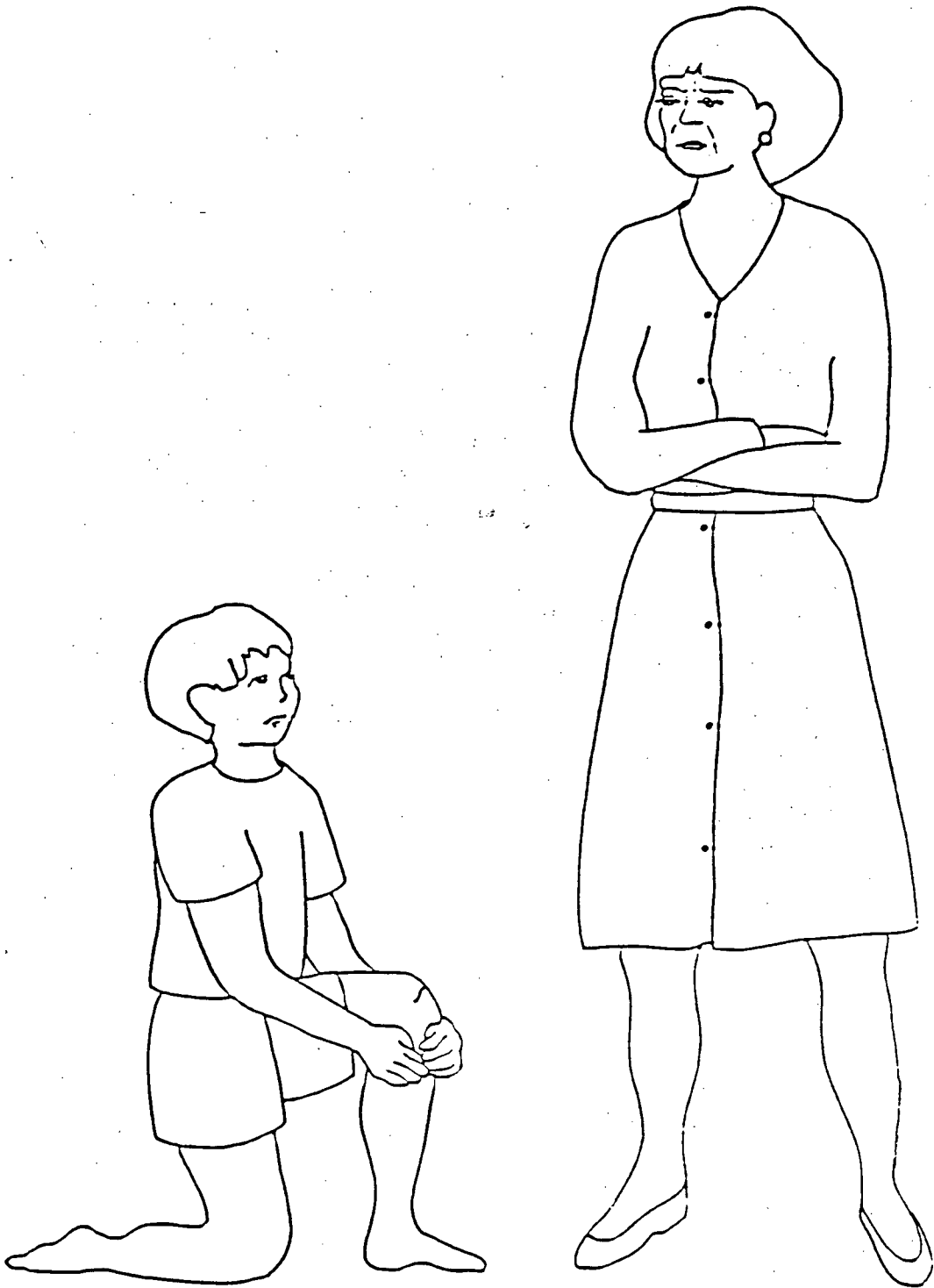


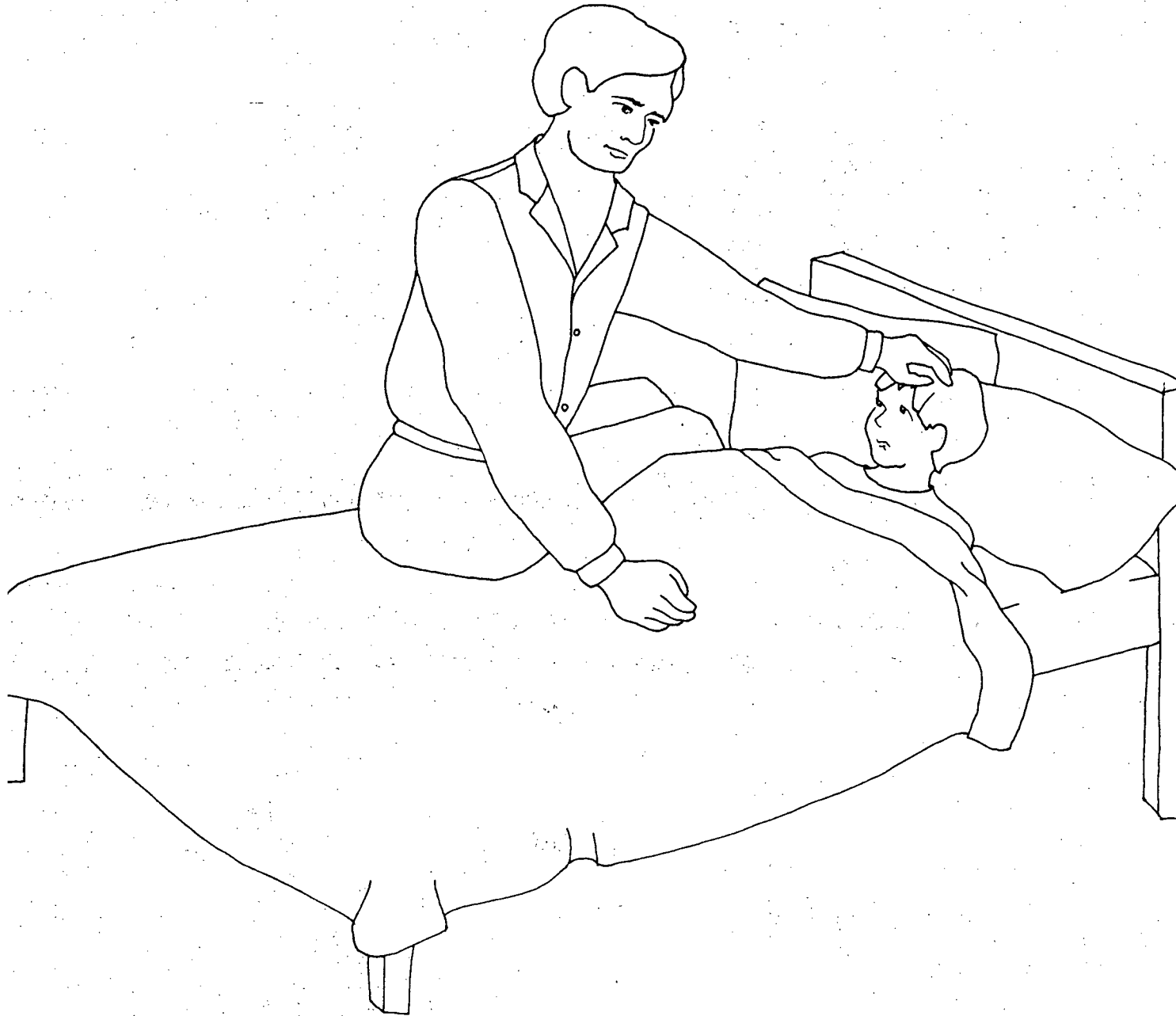
ZJ2



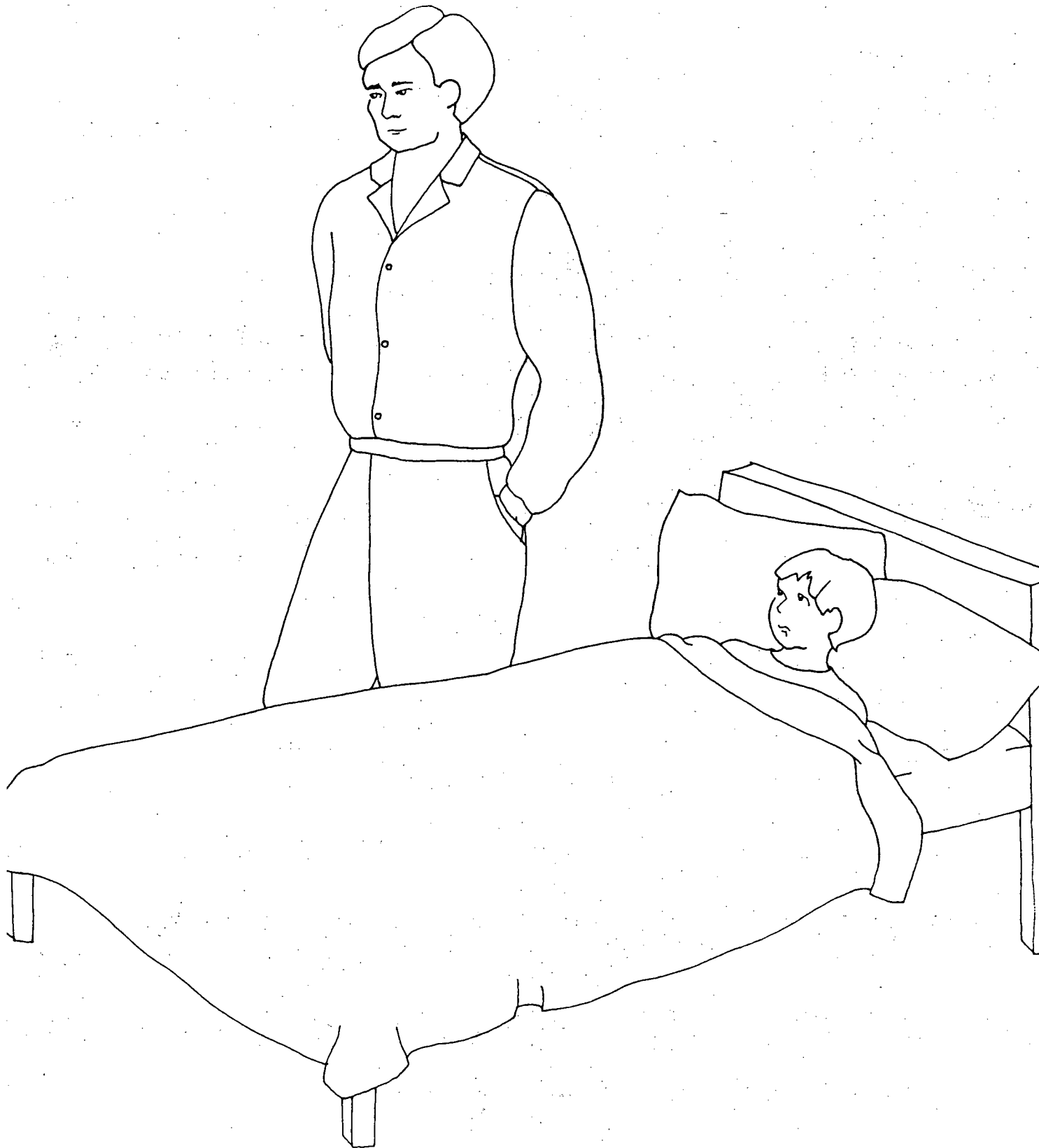


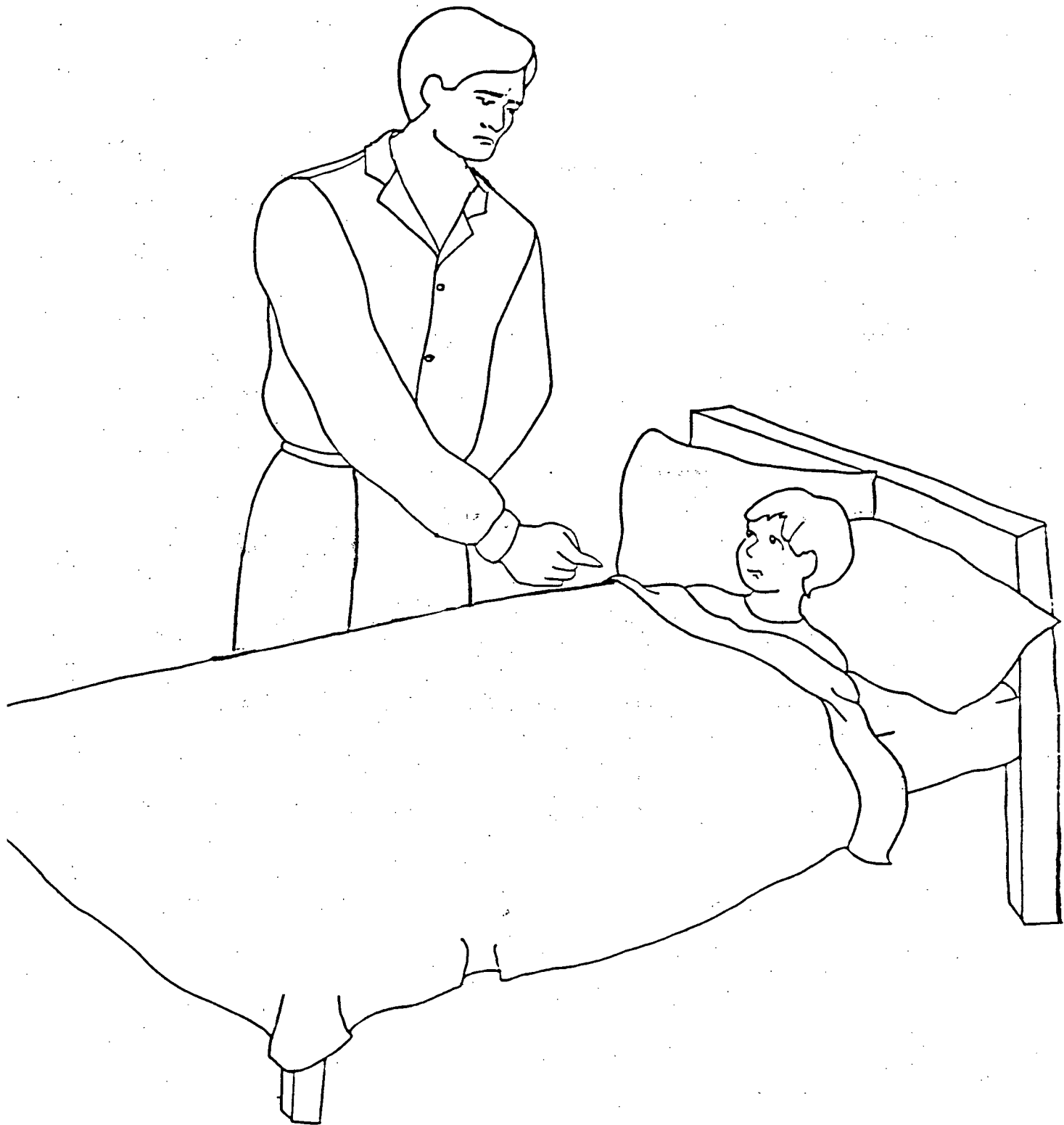
273

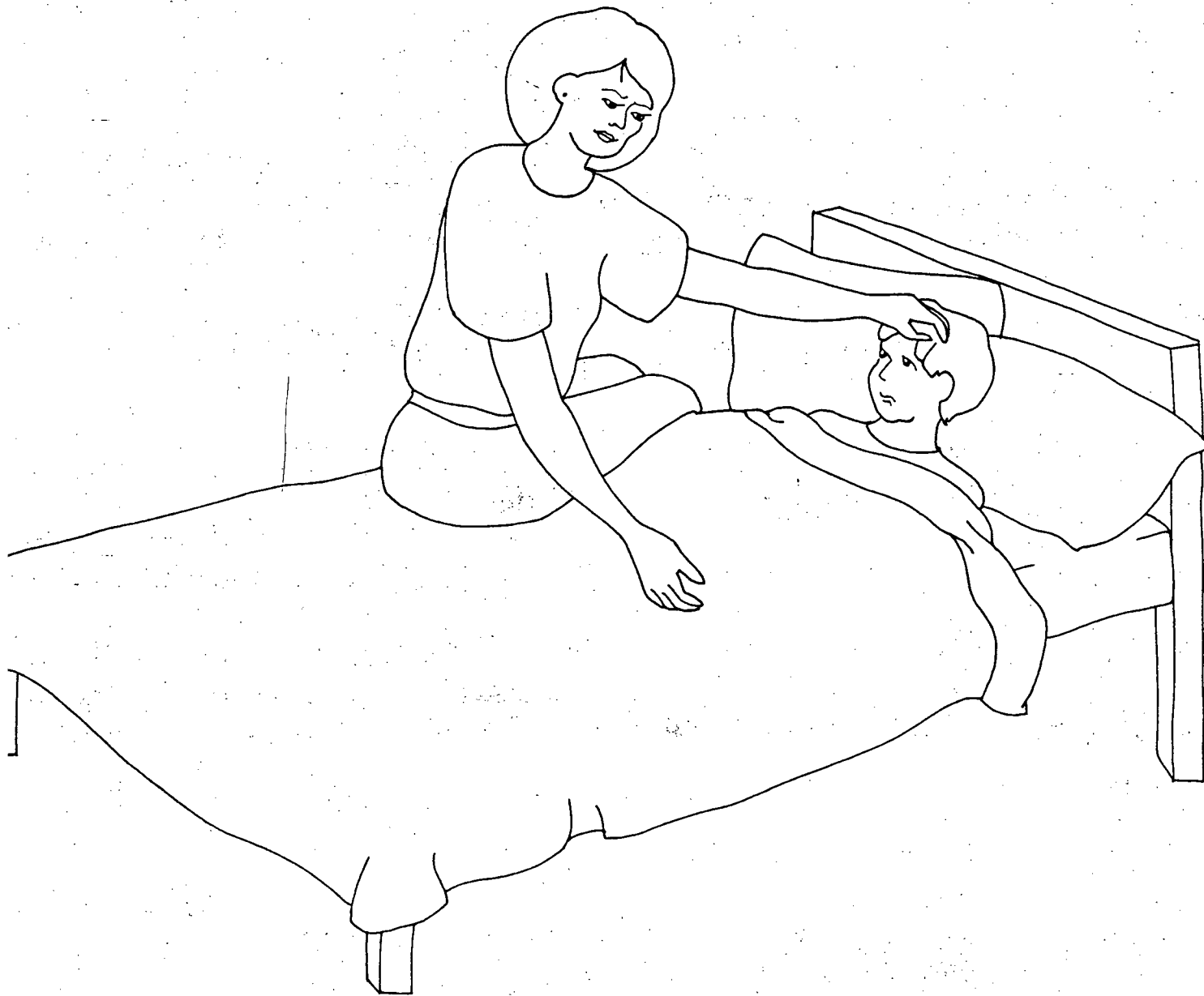


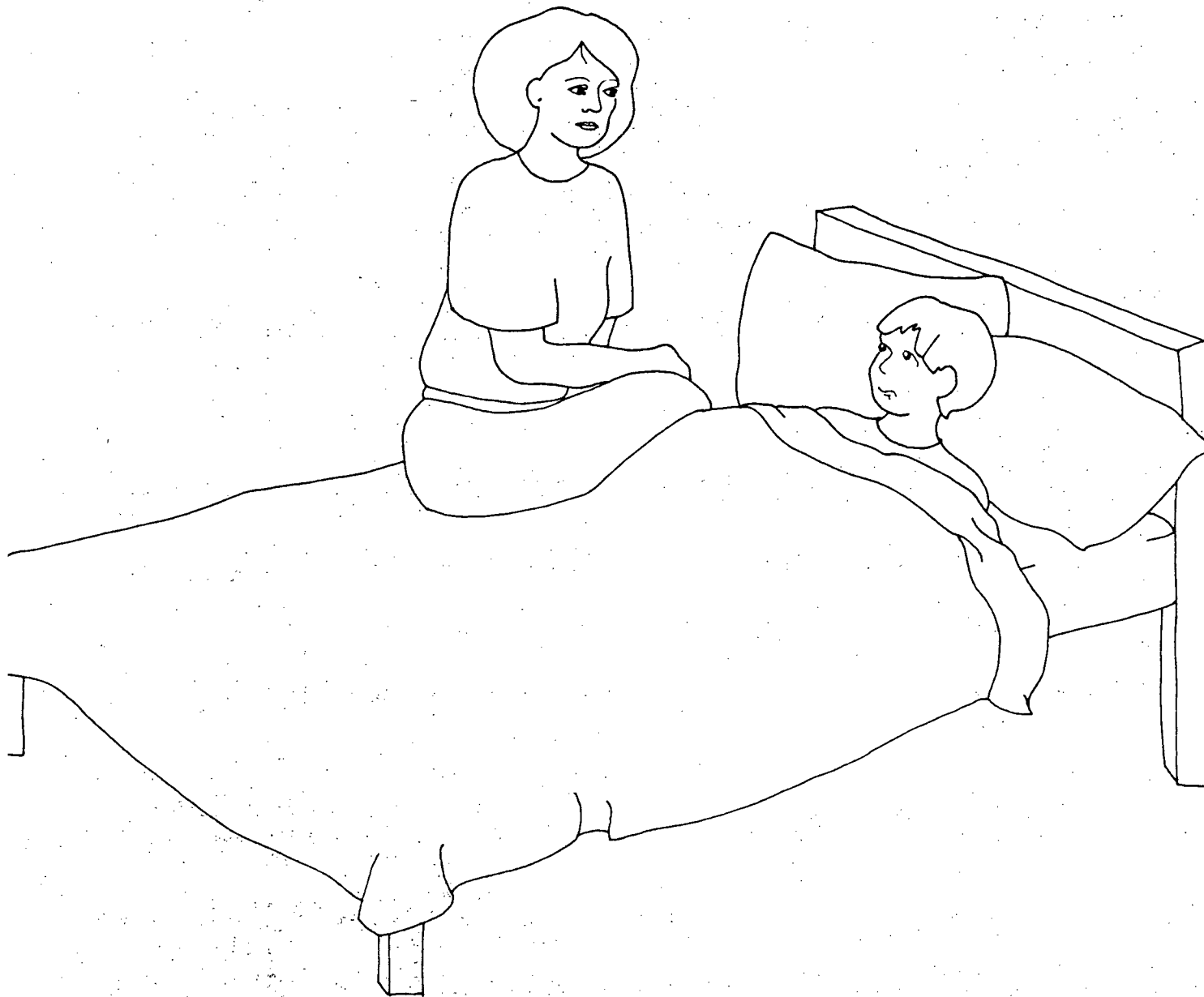


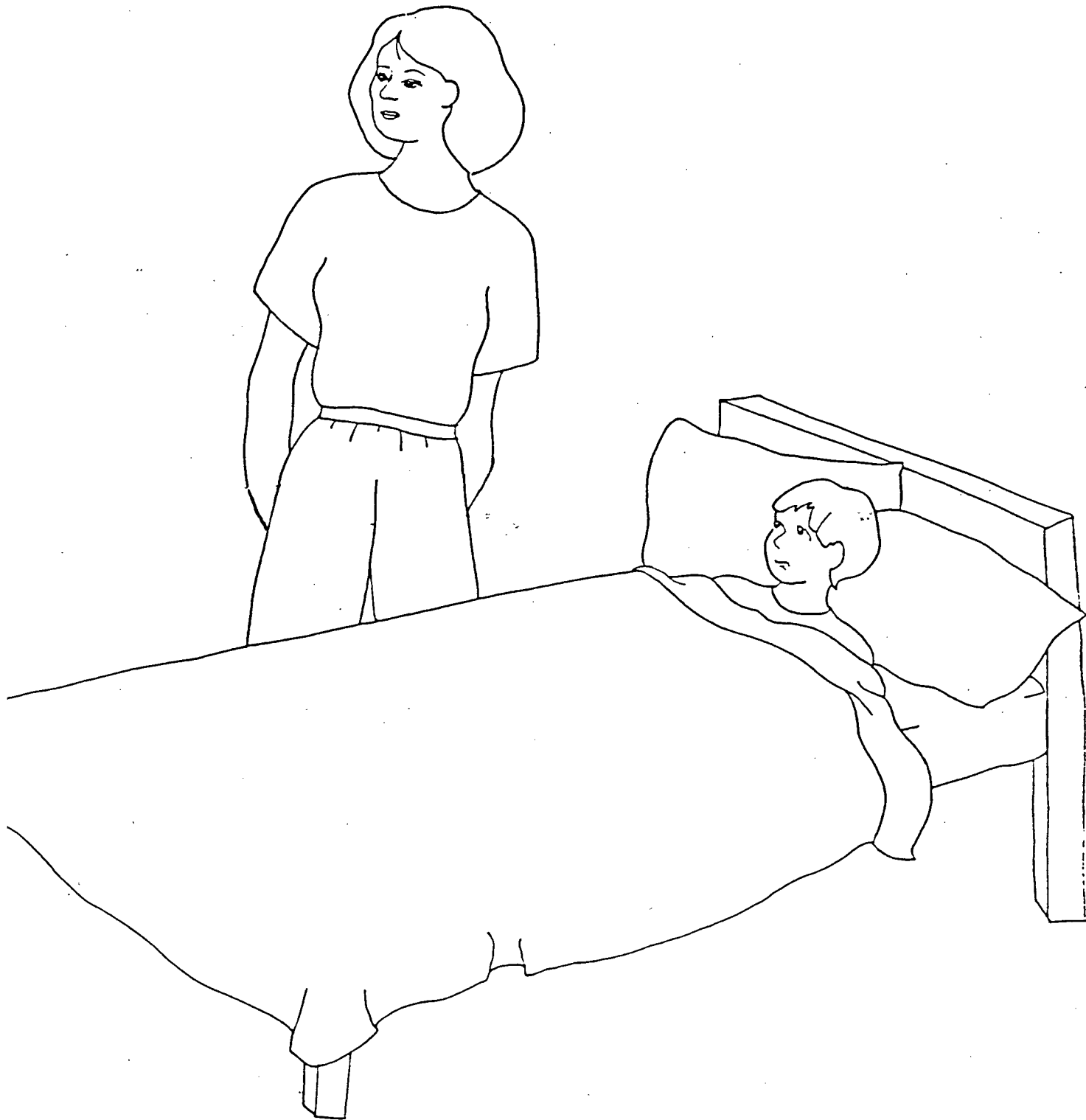


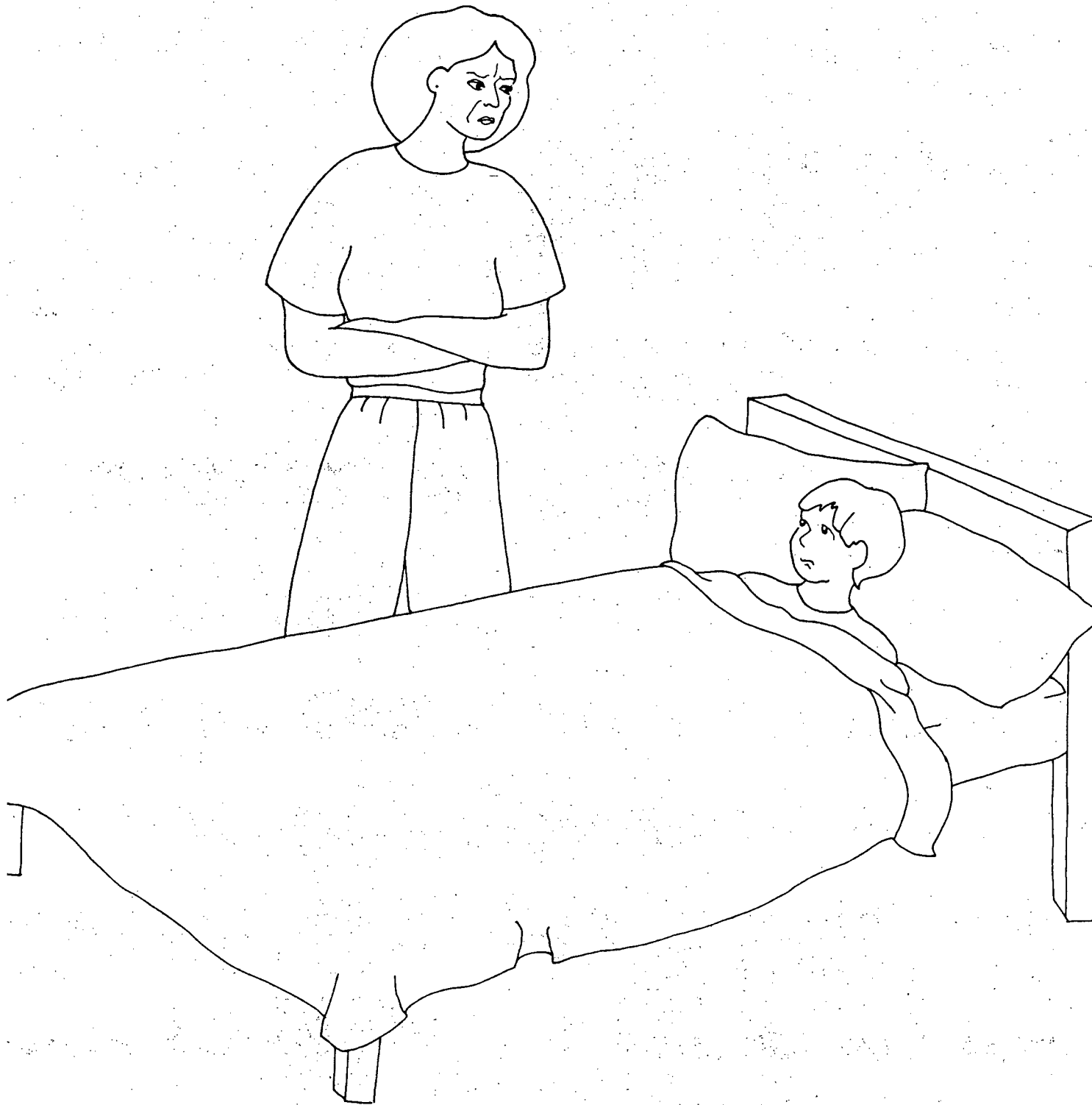


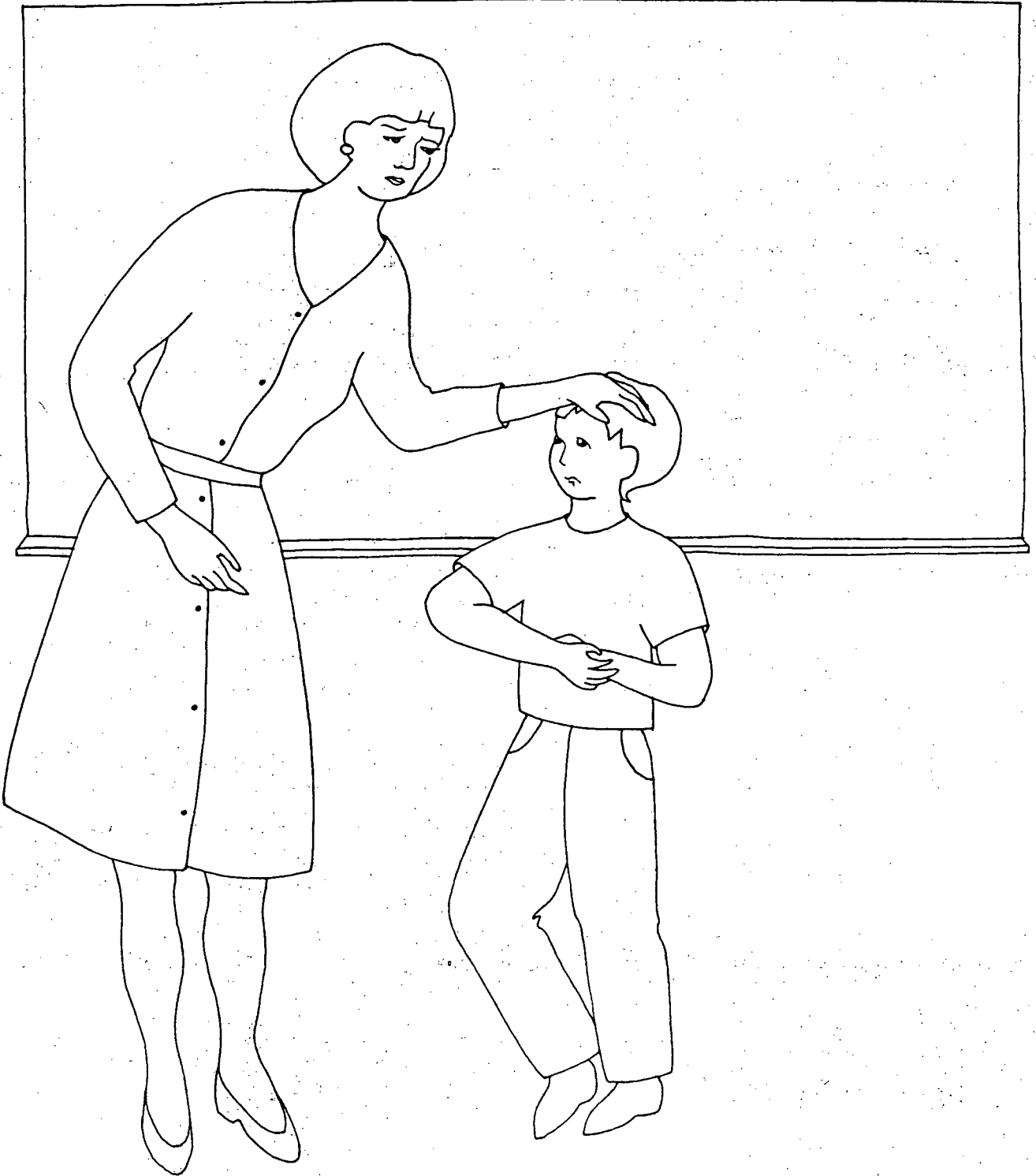


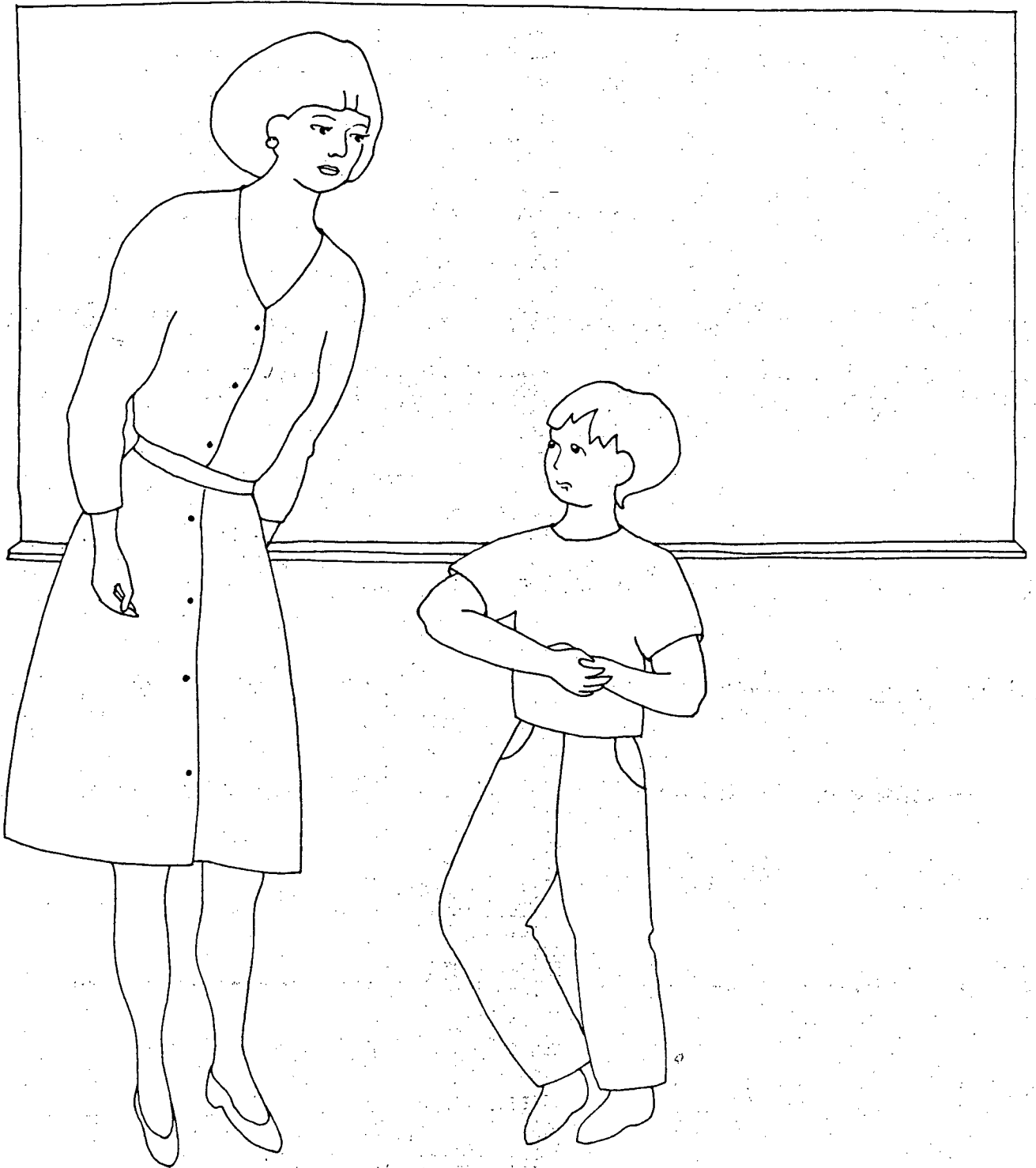


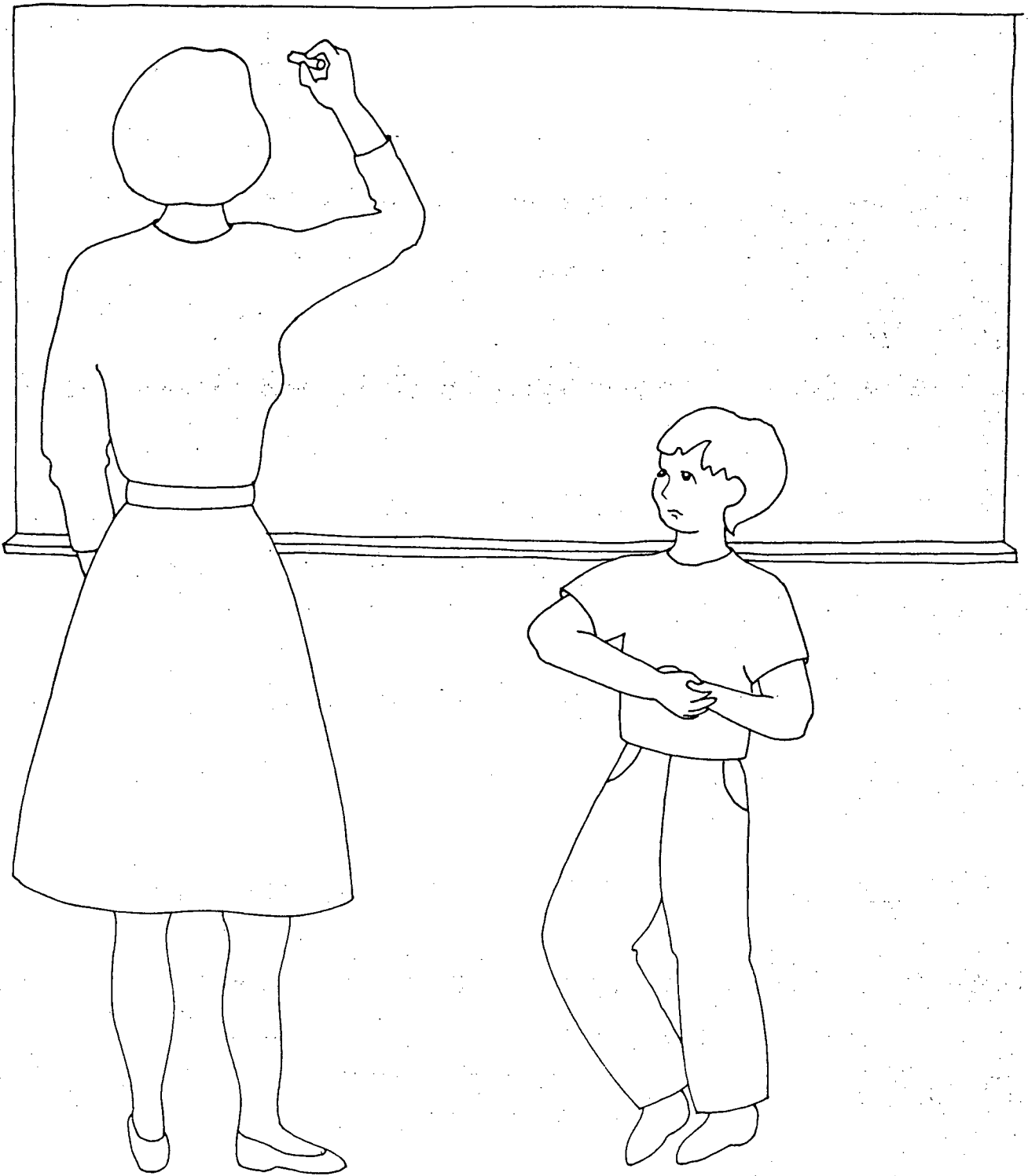


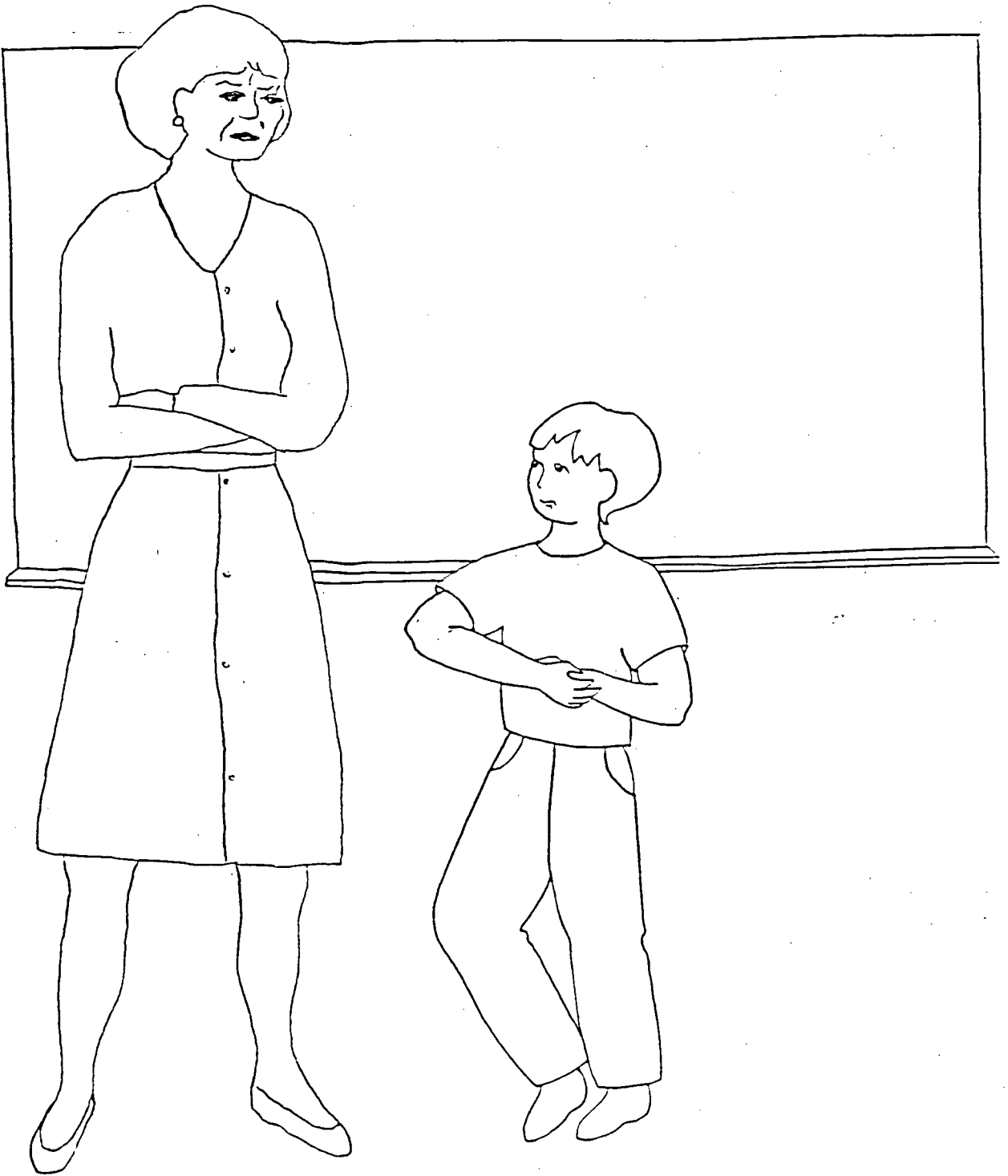


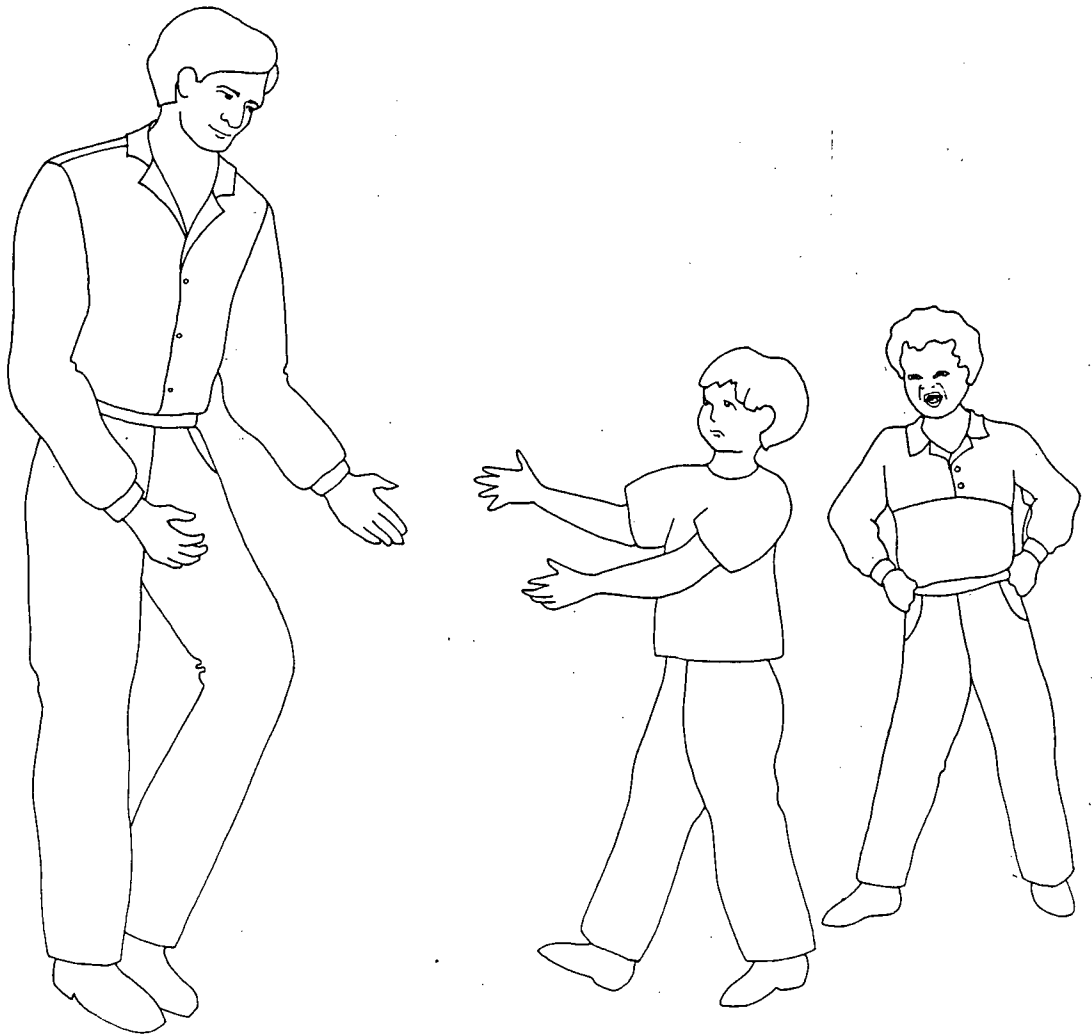


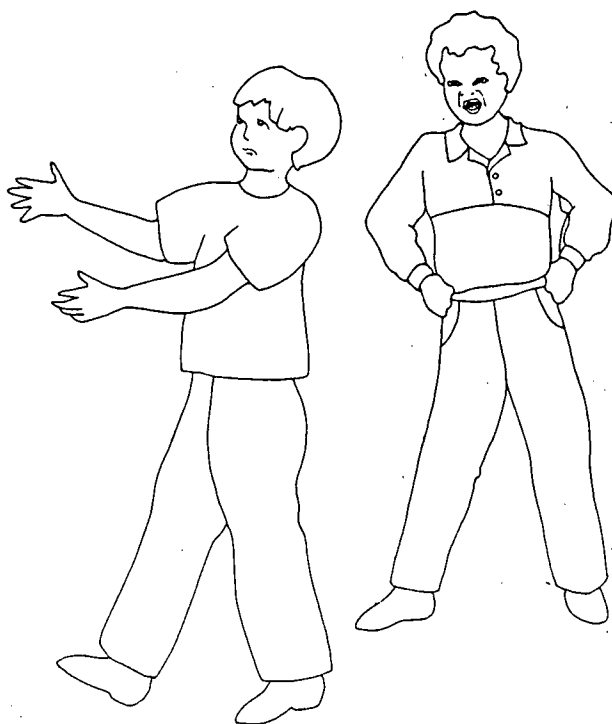
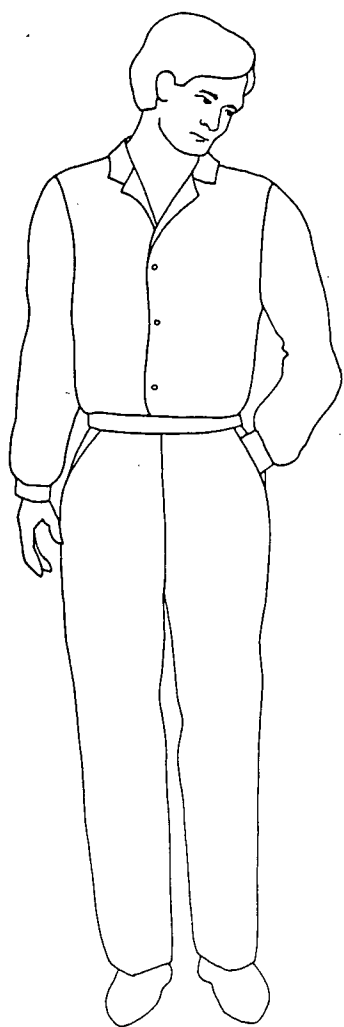


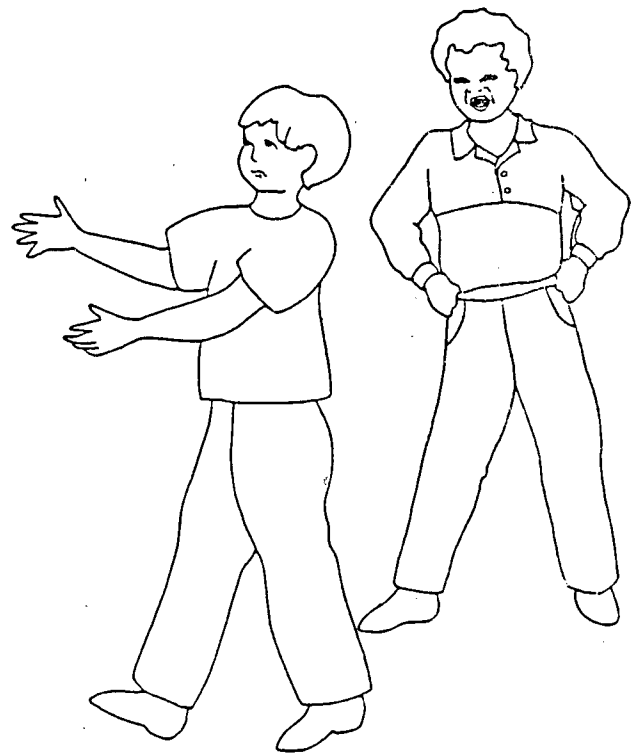
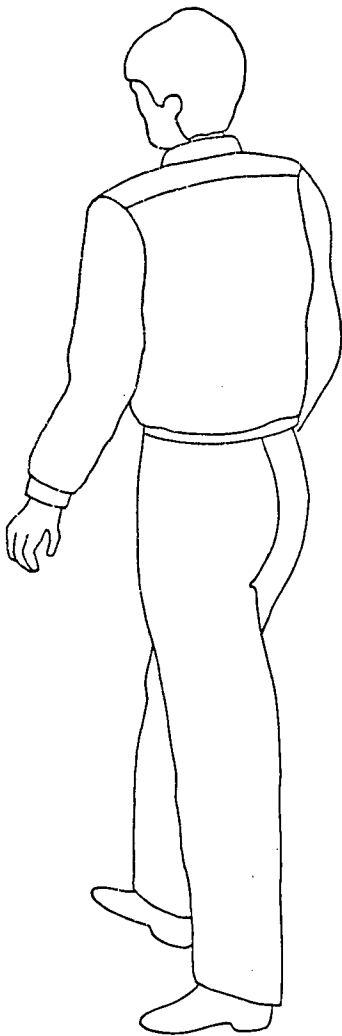


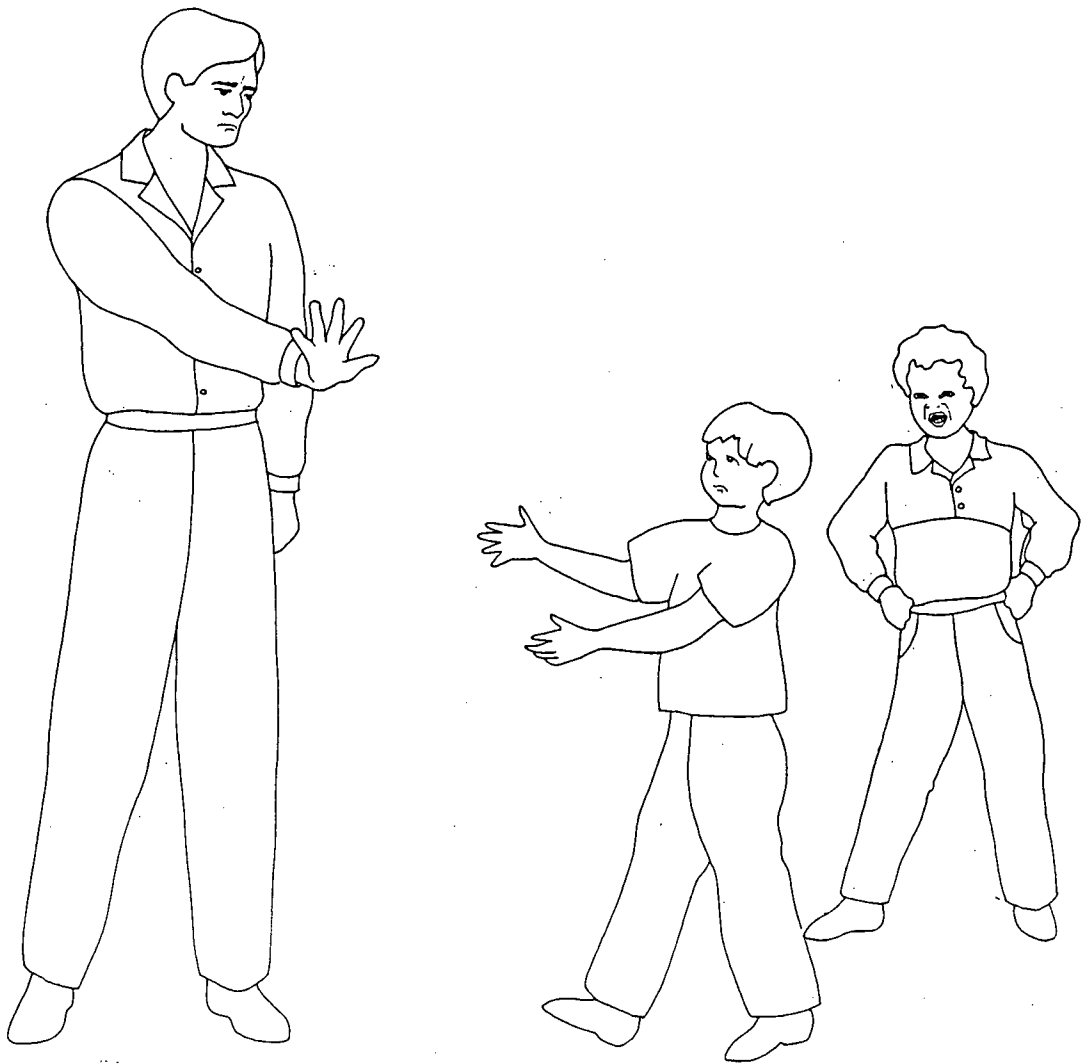


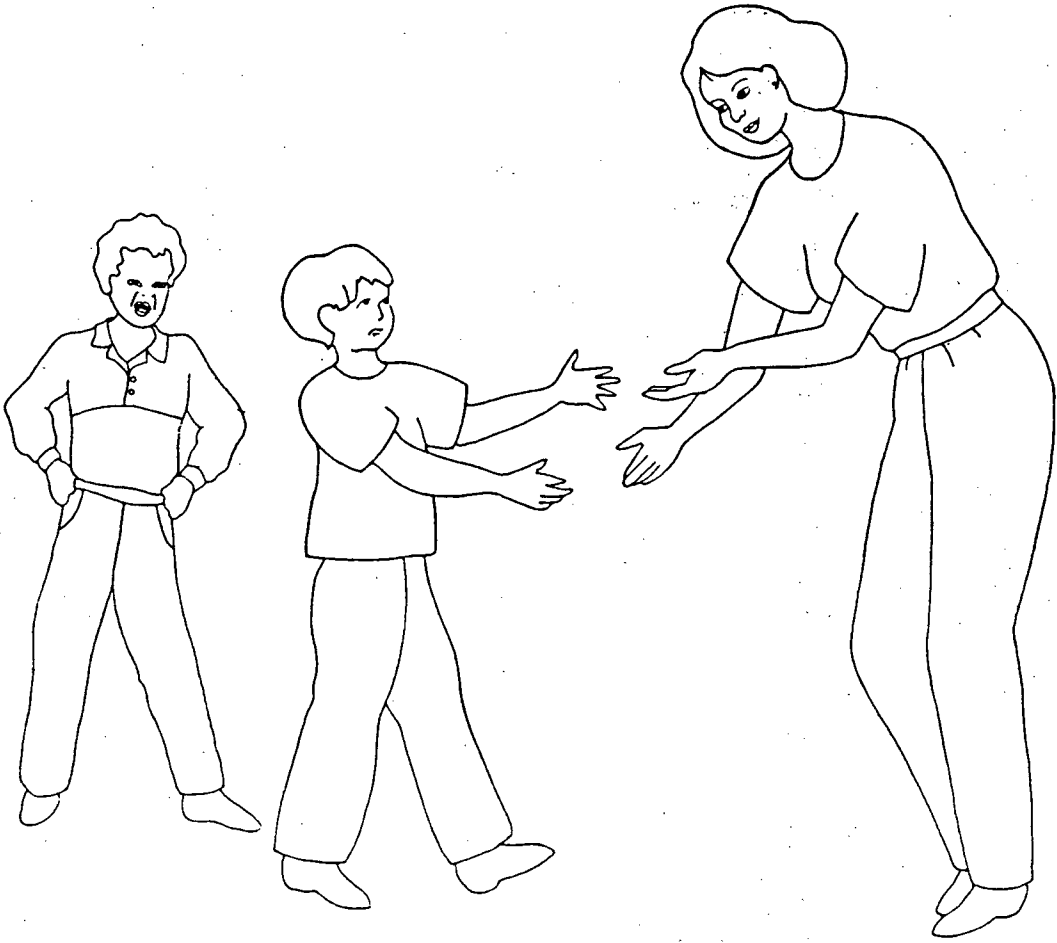


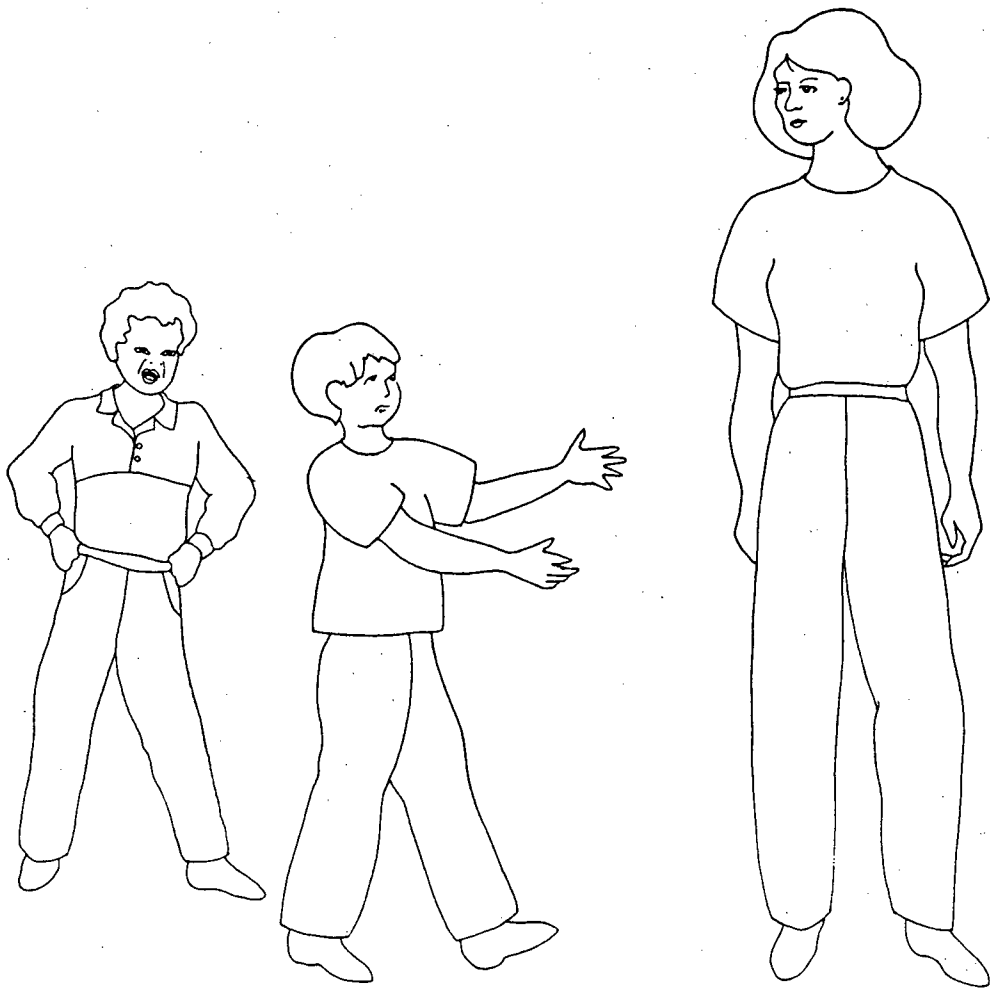


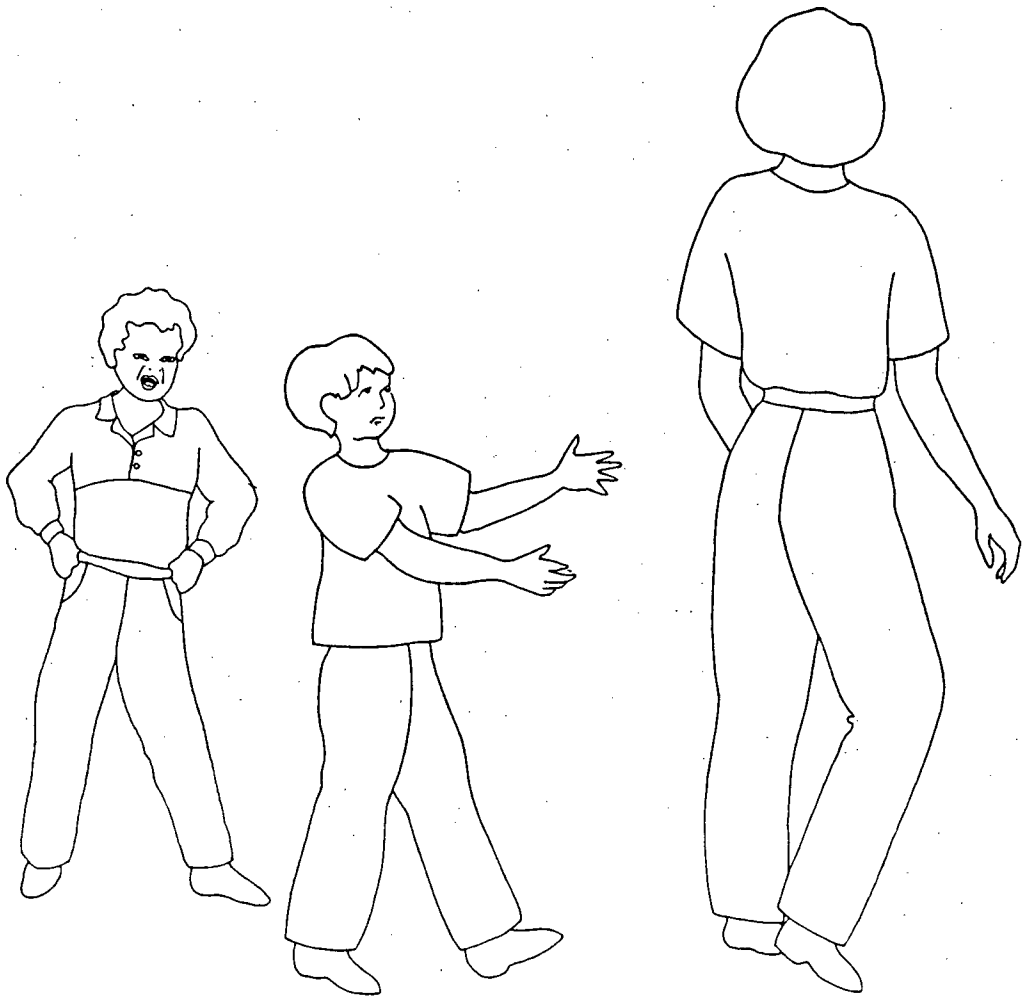


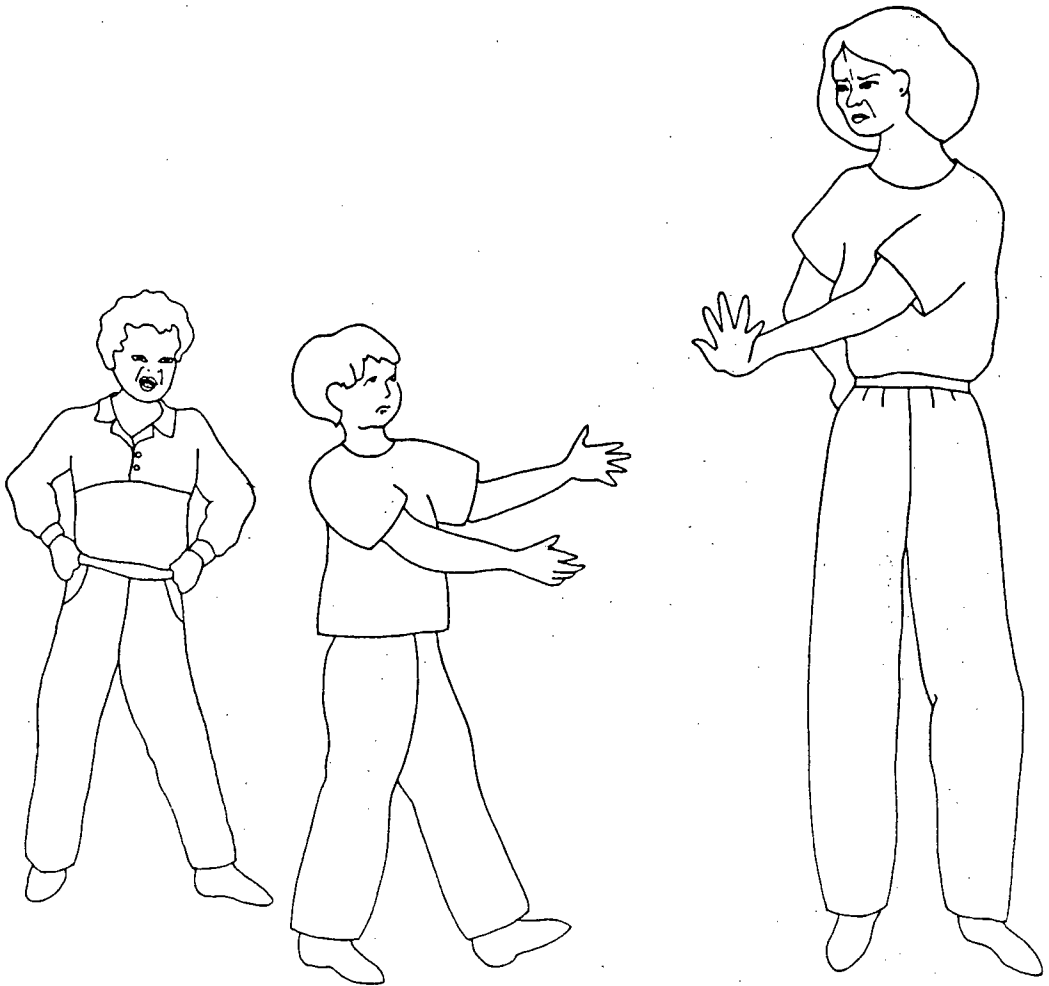


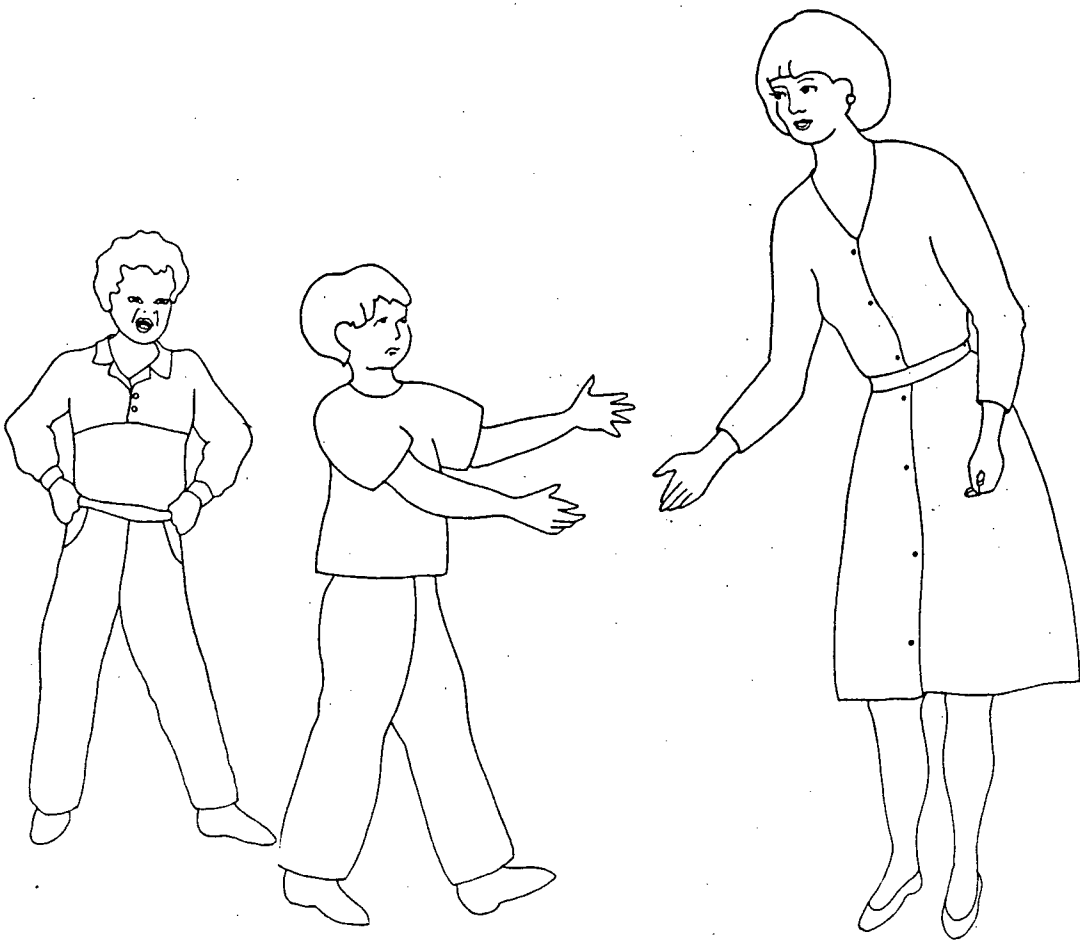


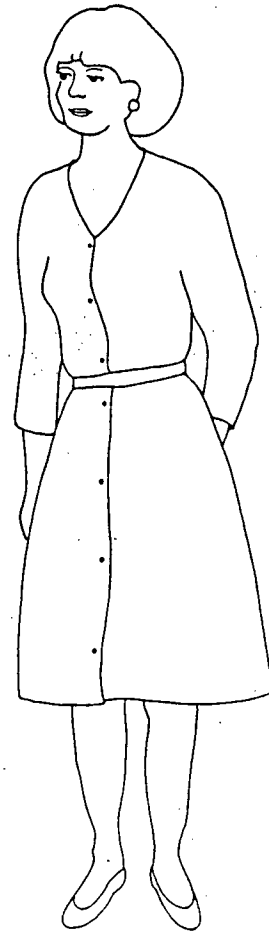
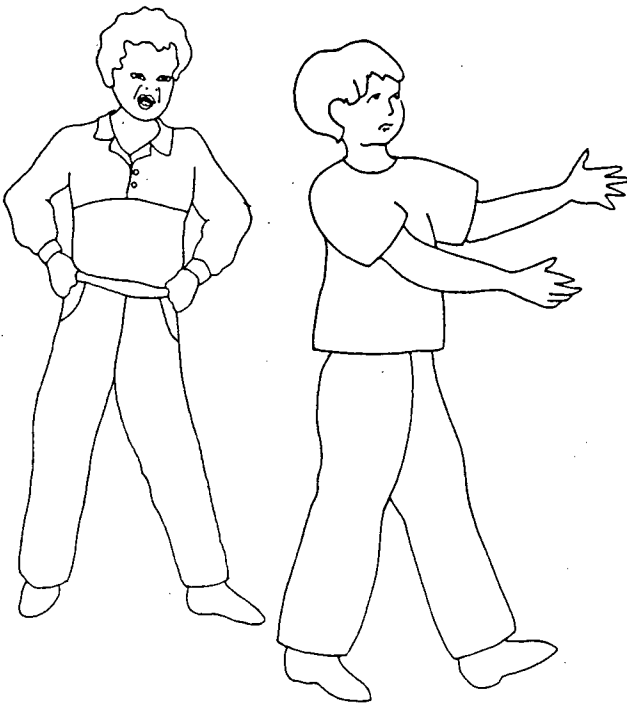


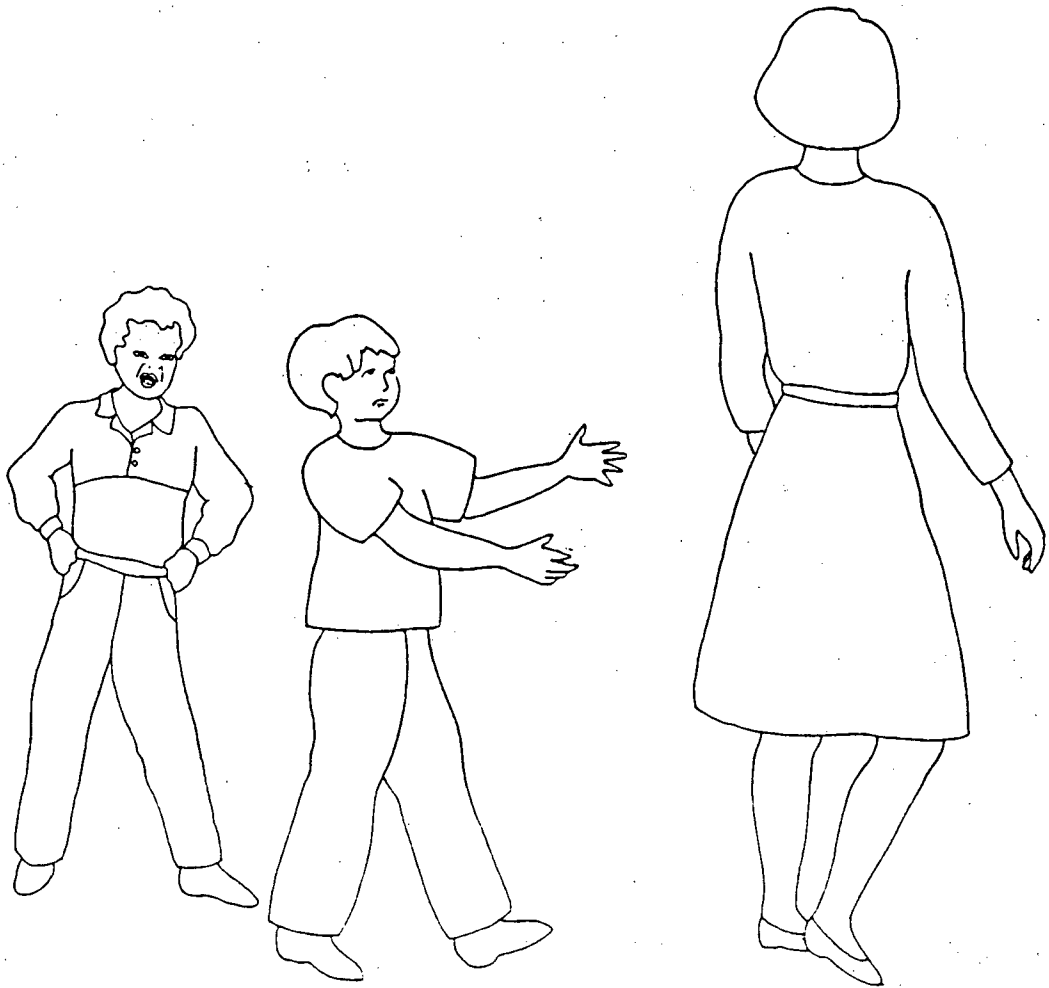


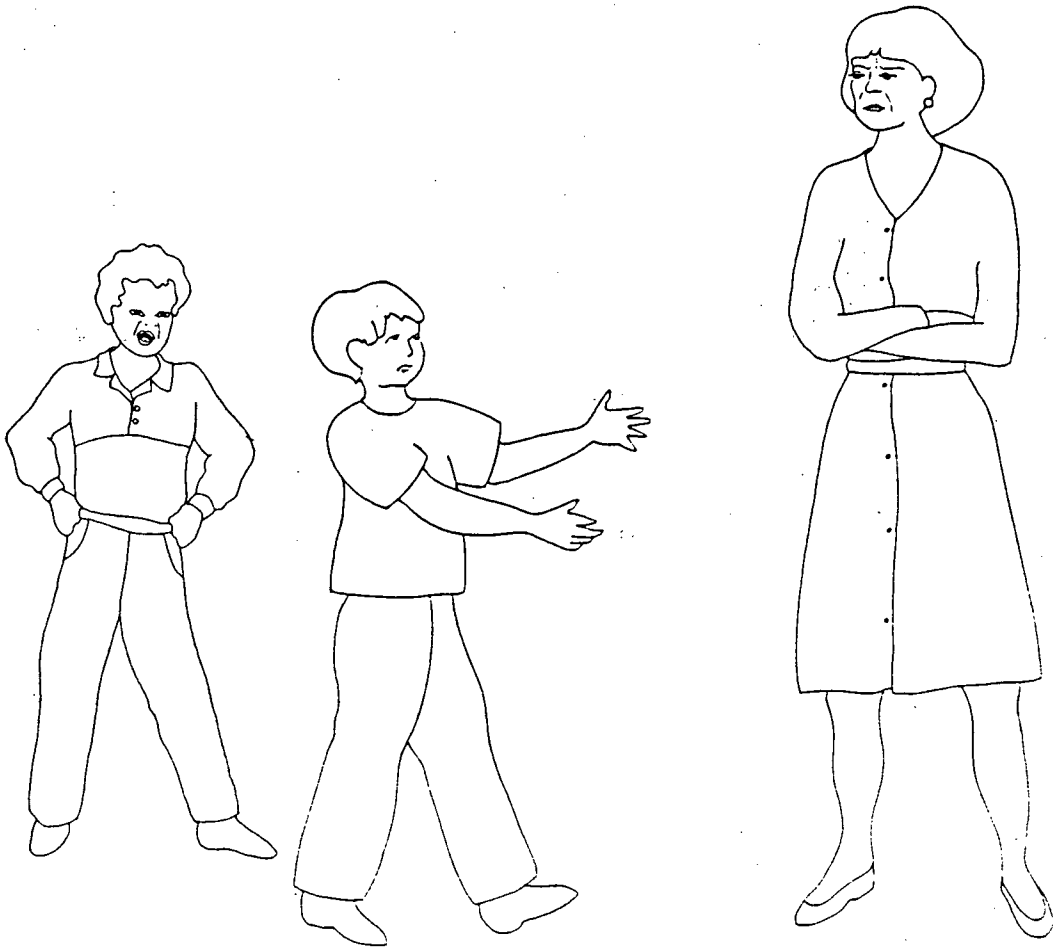


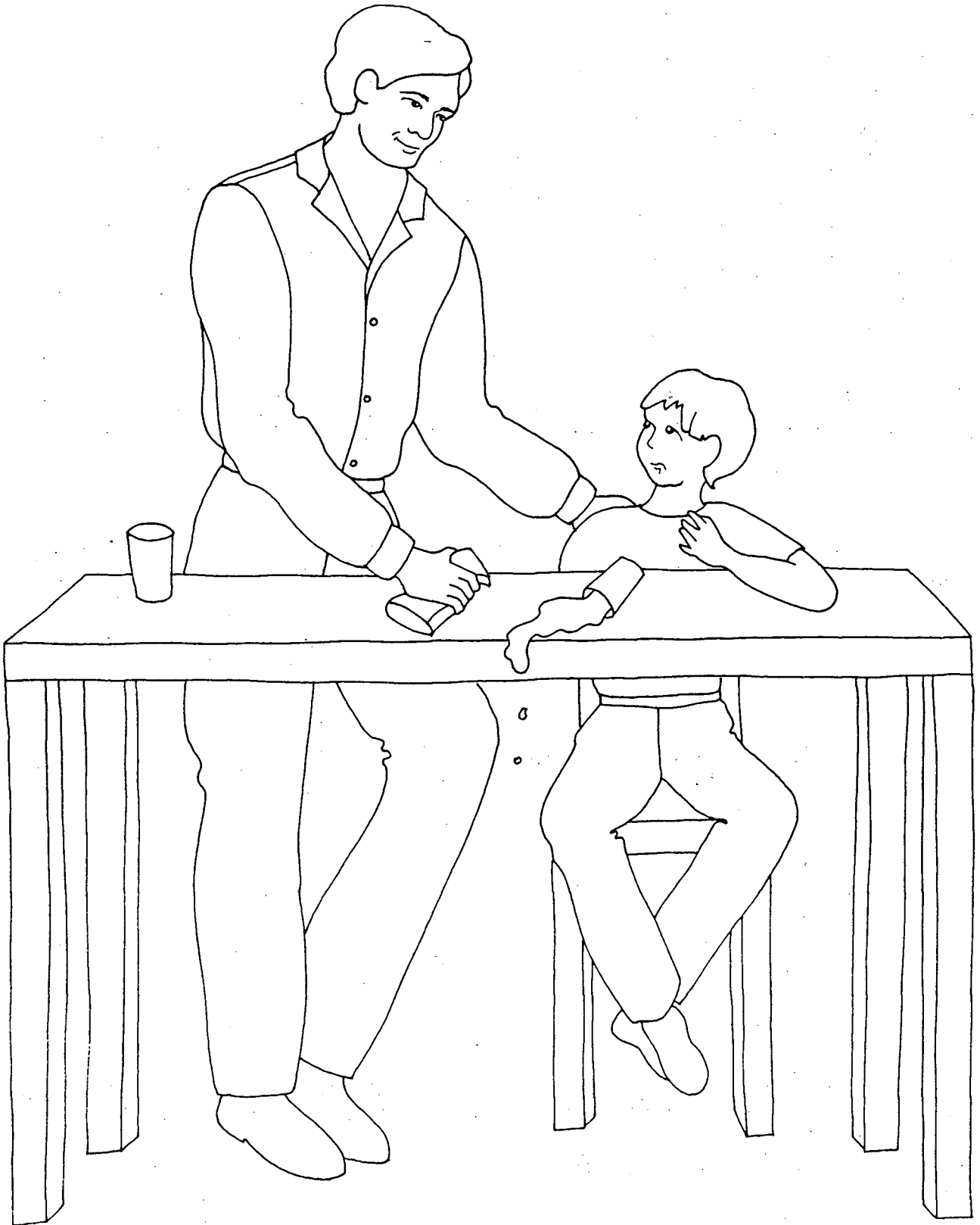


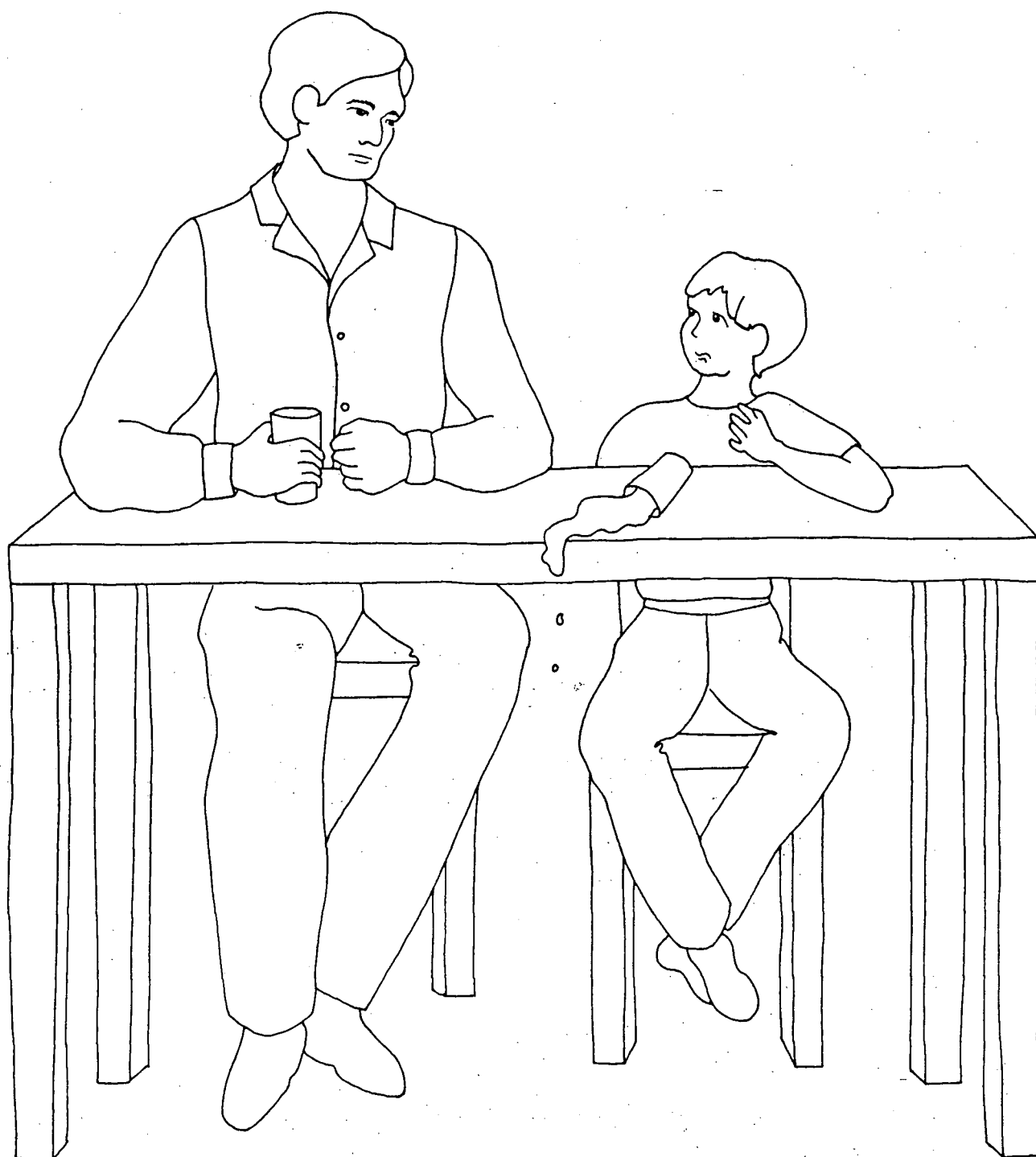


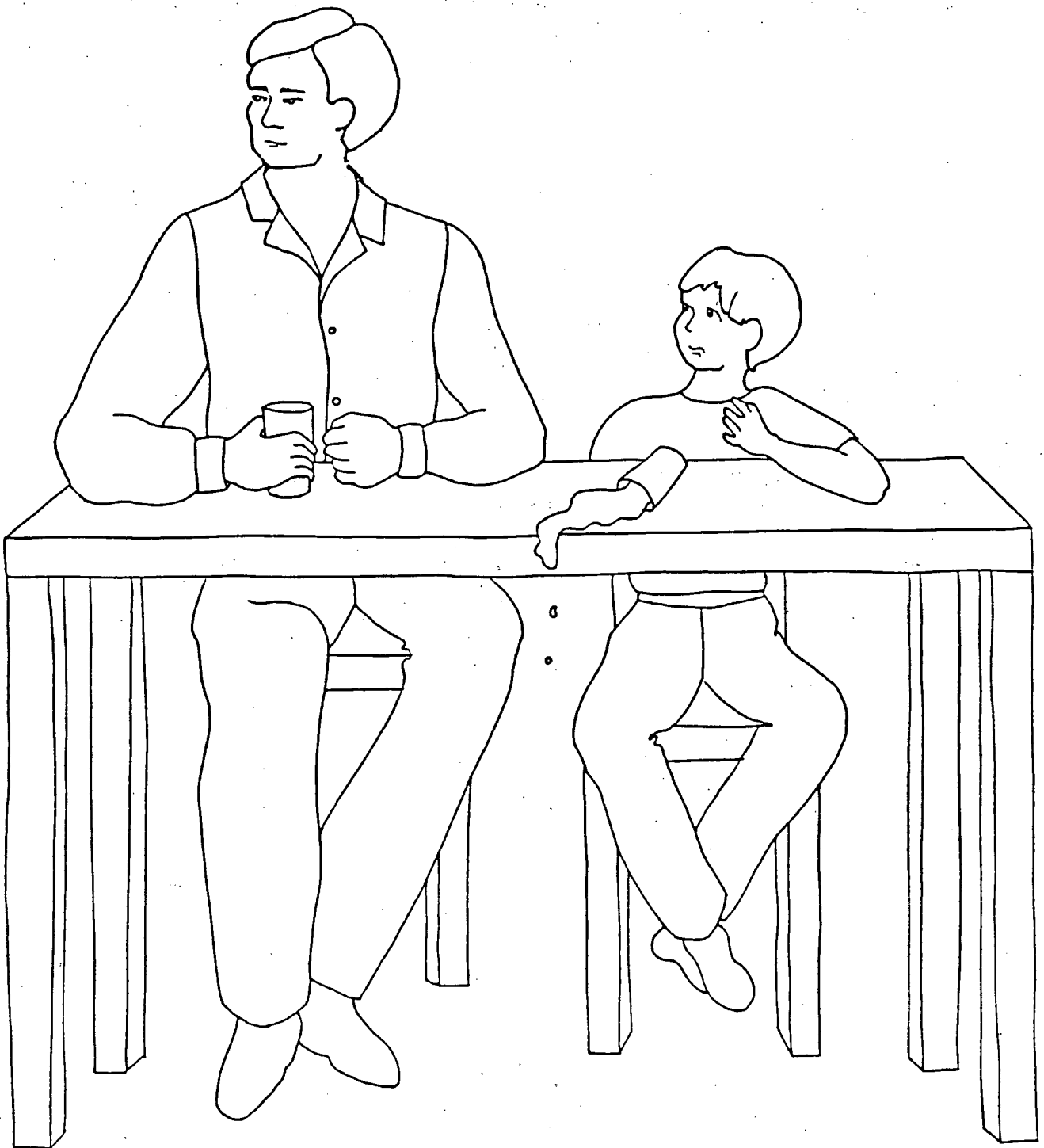


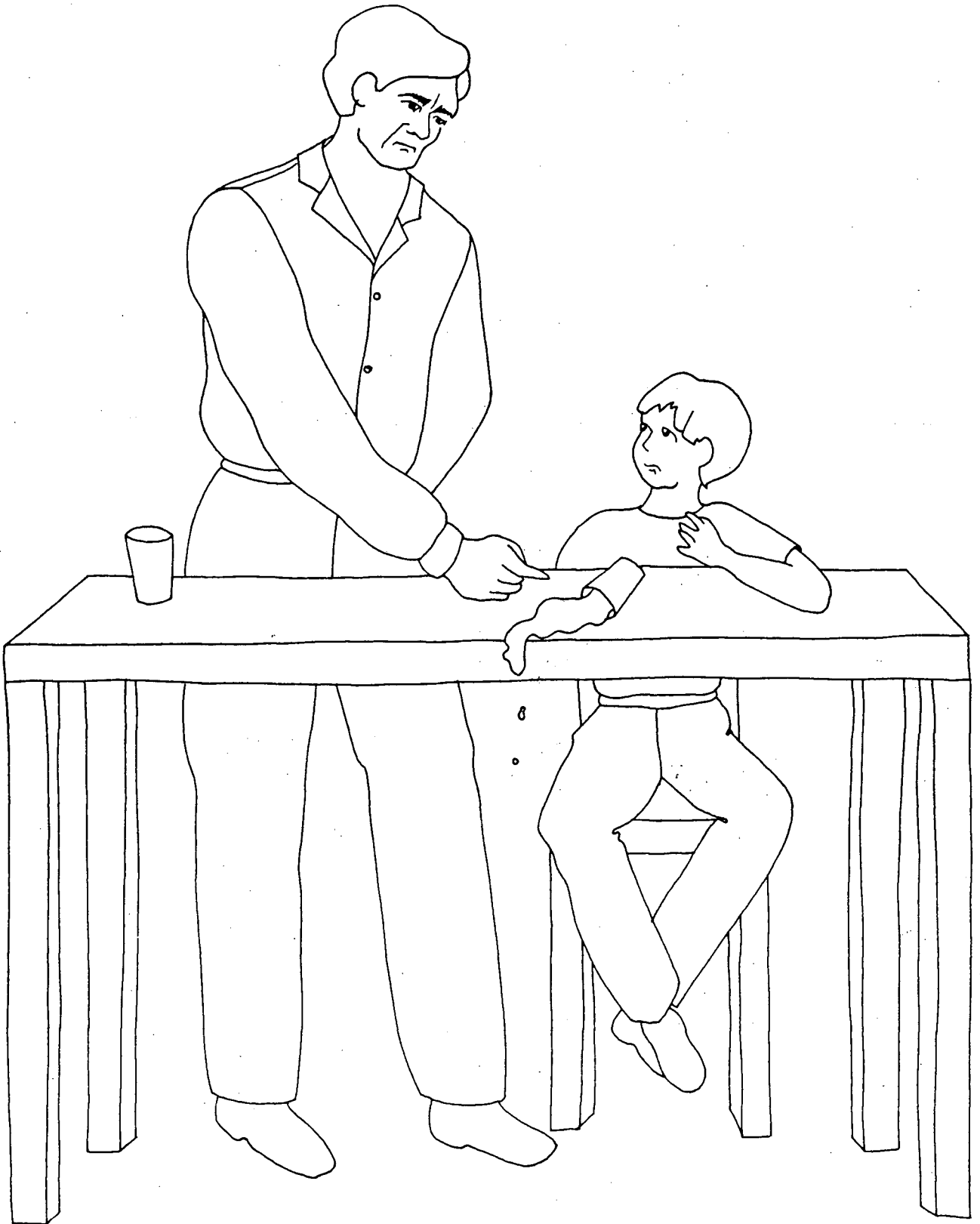


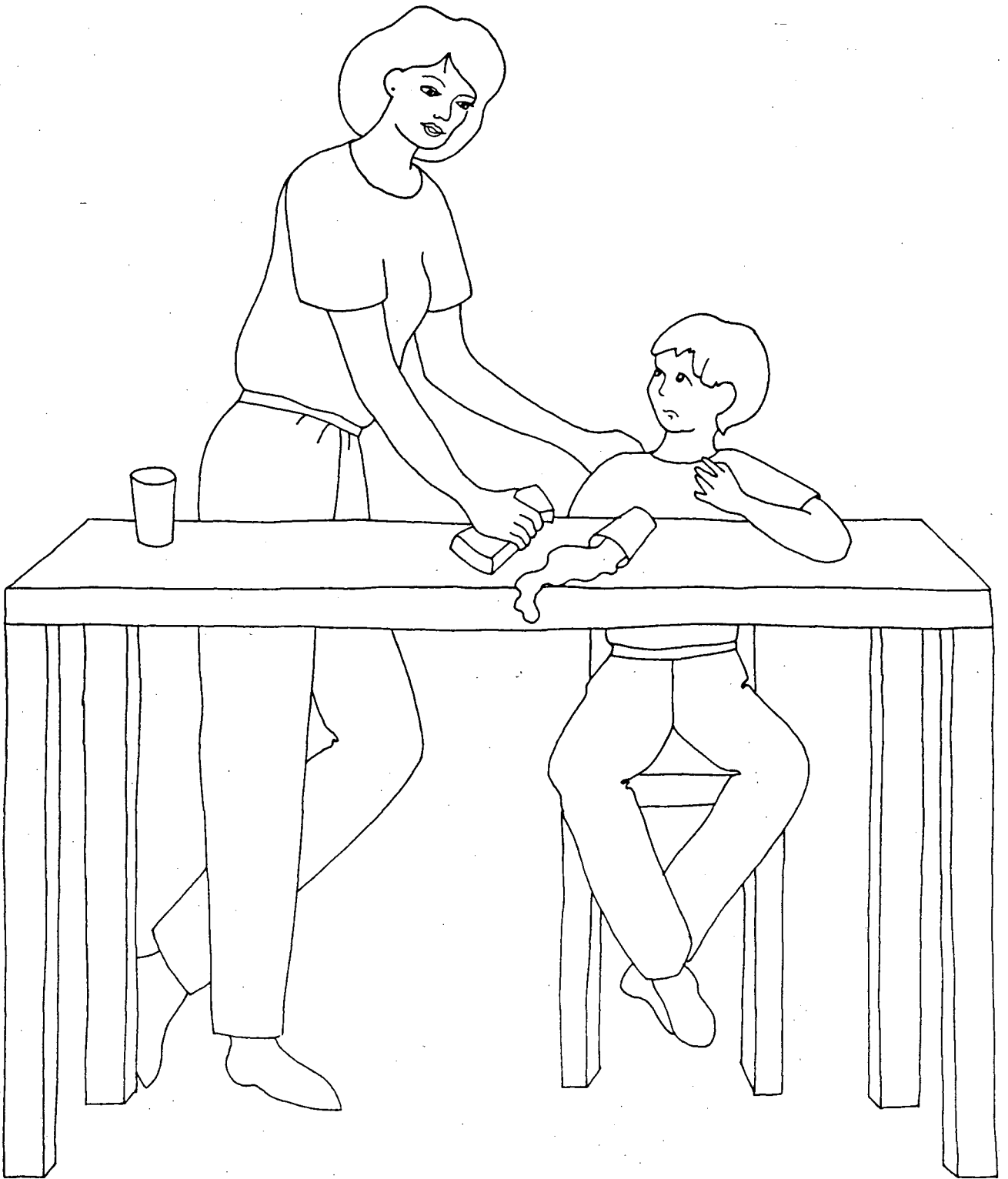


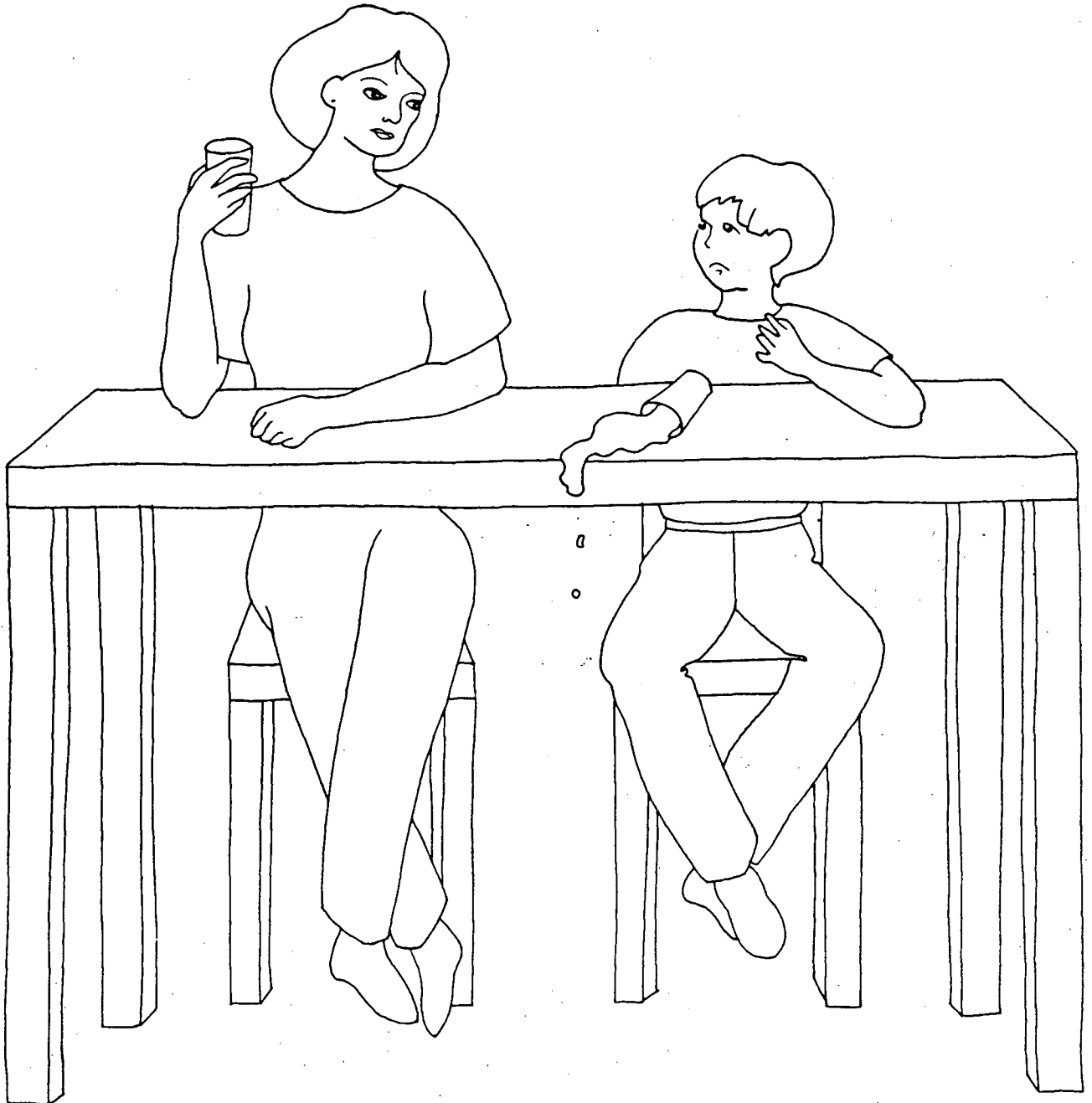


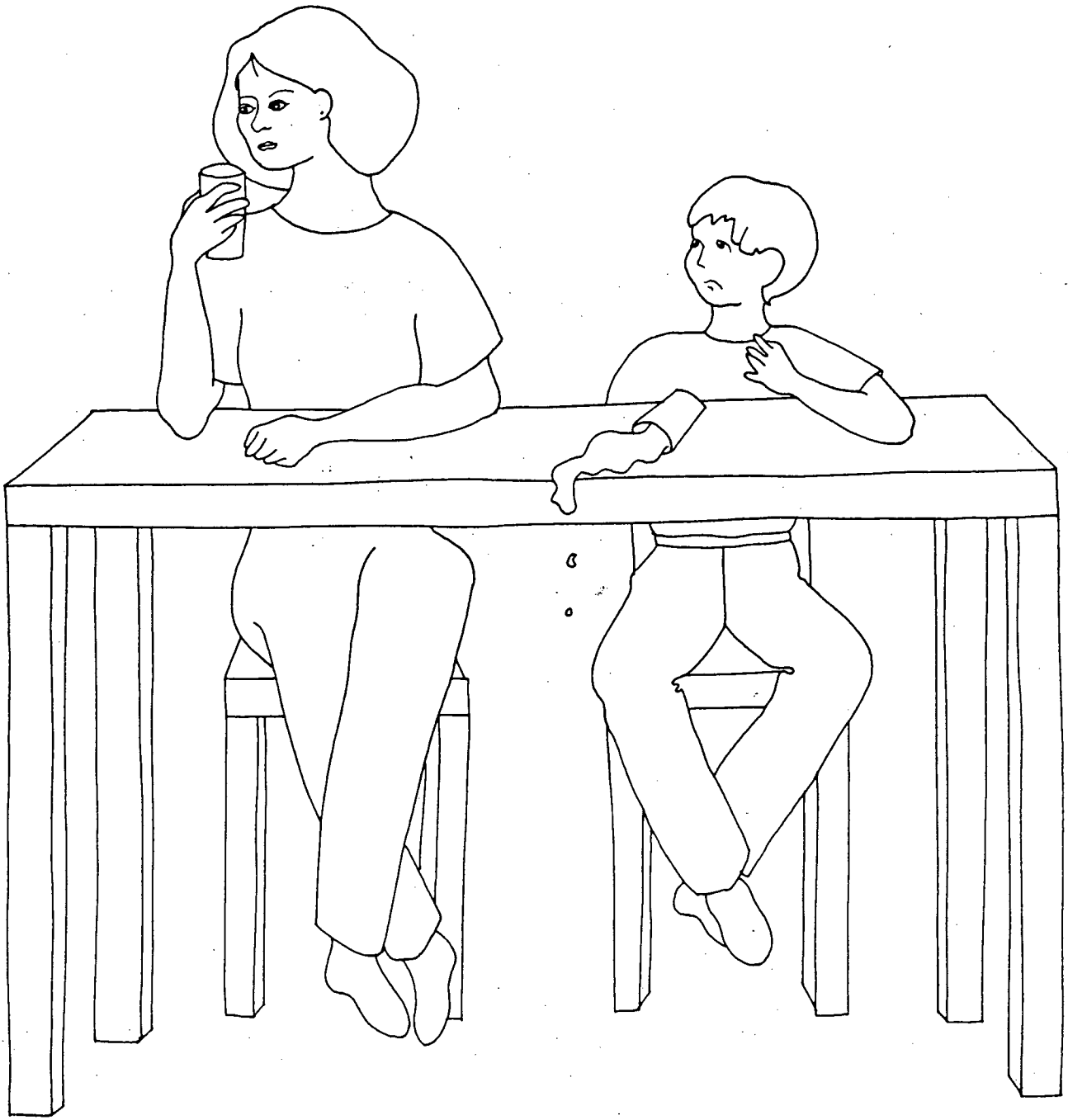


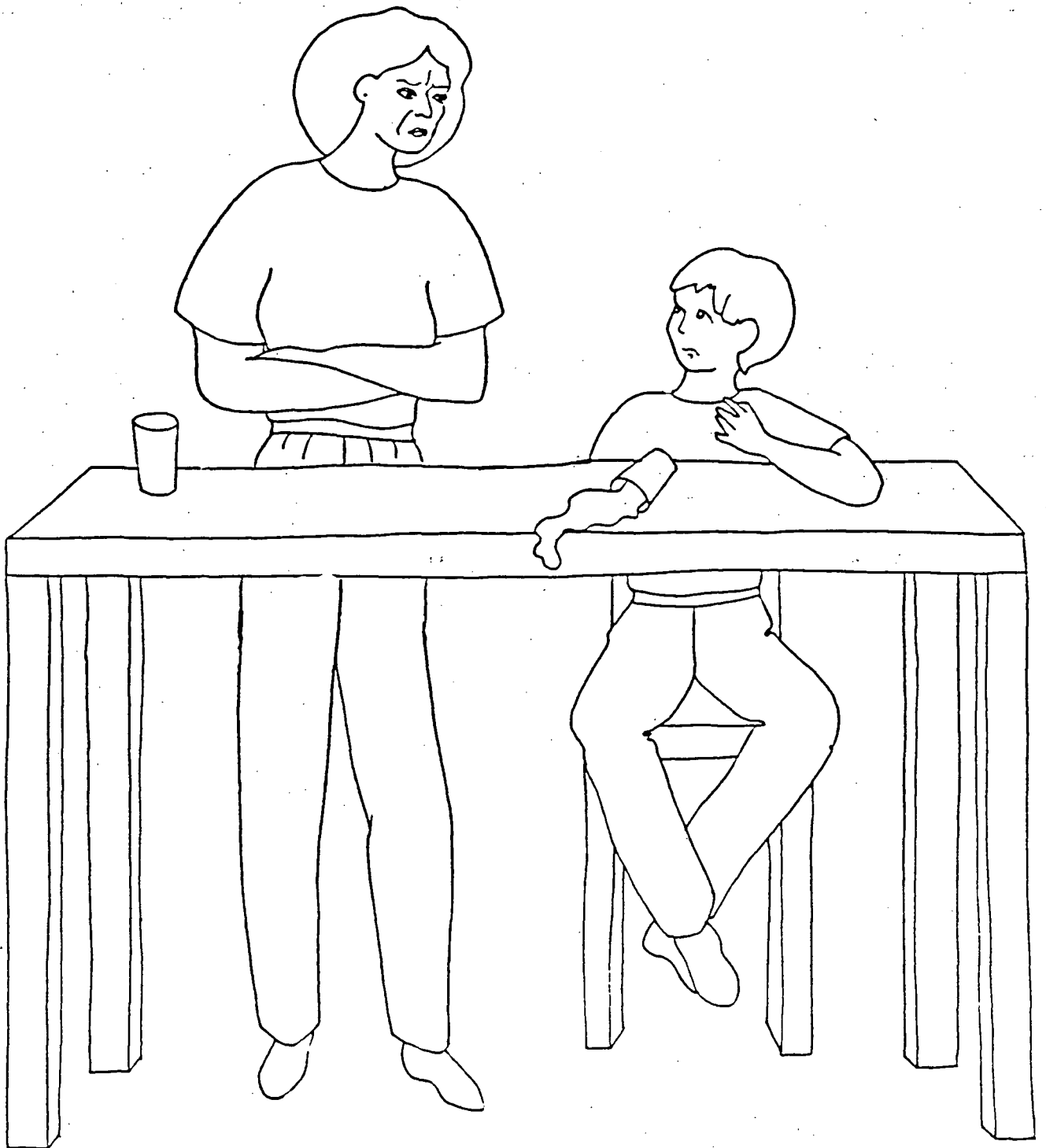


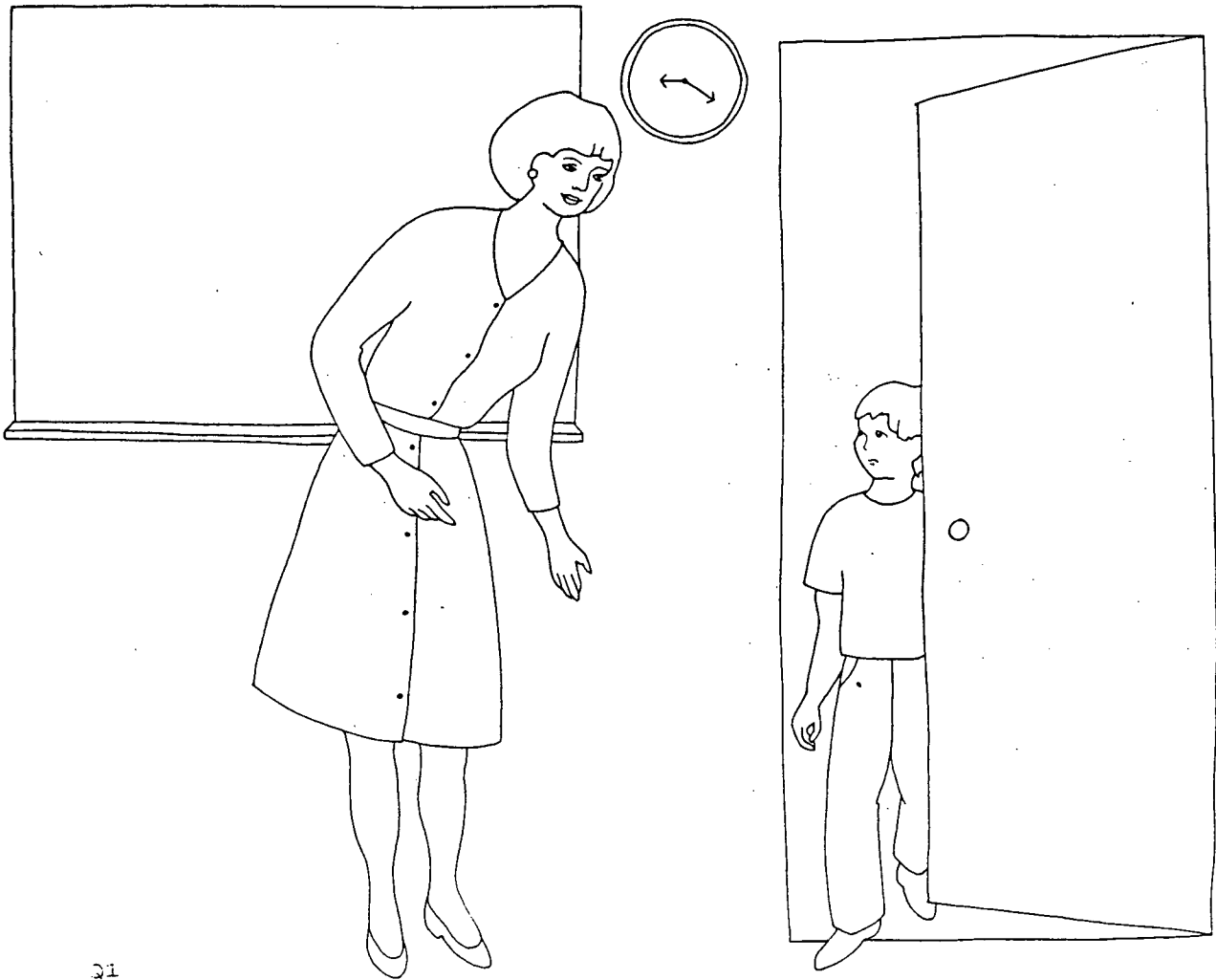


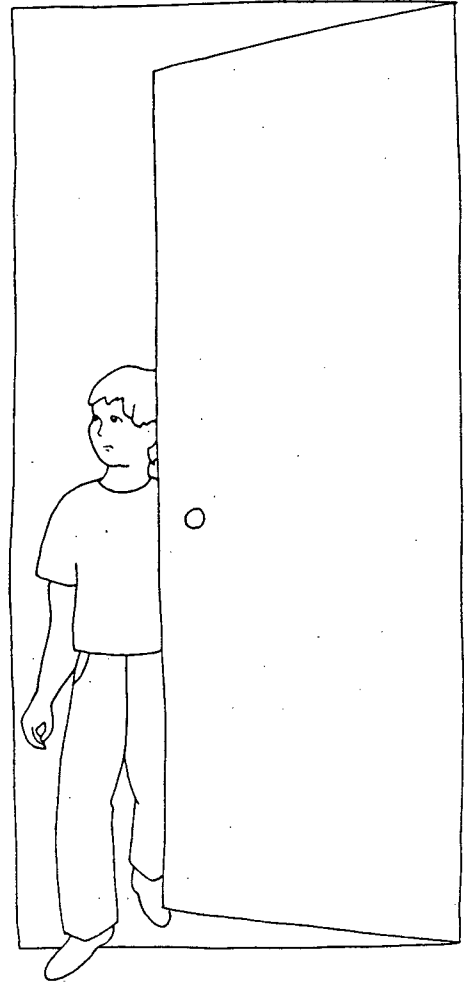
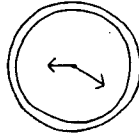
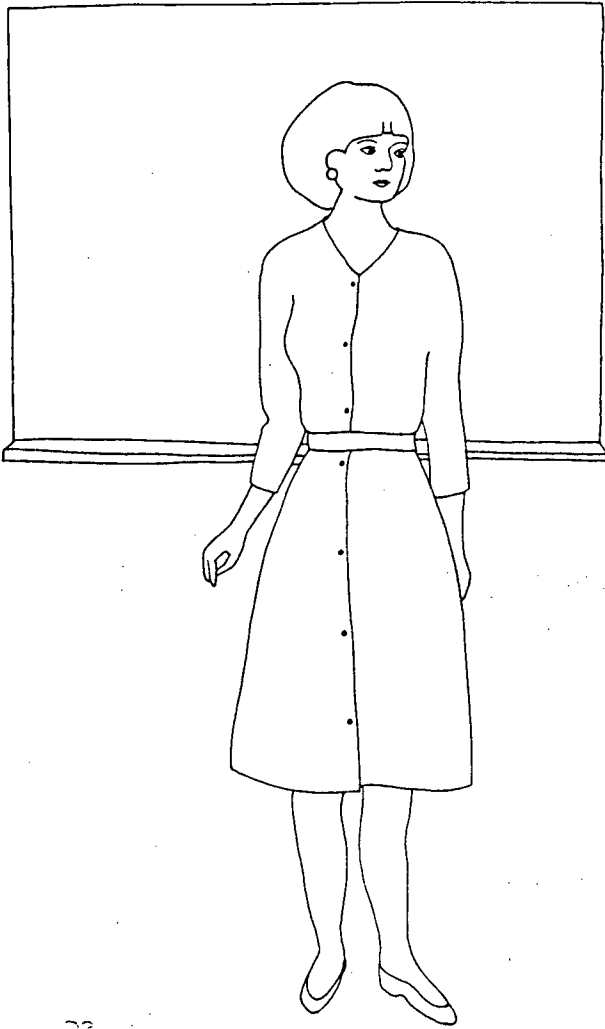


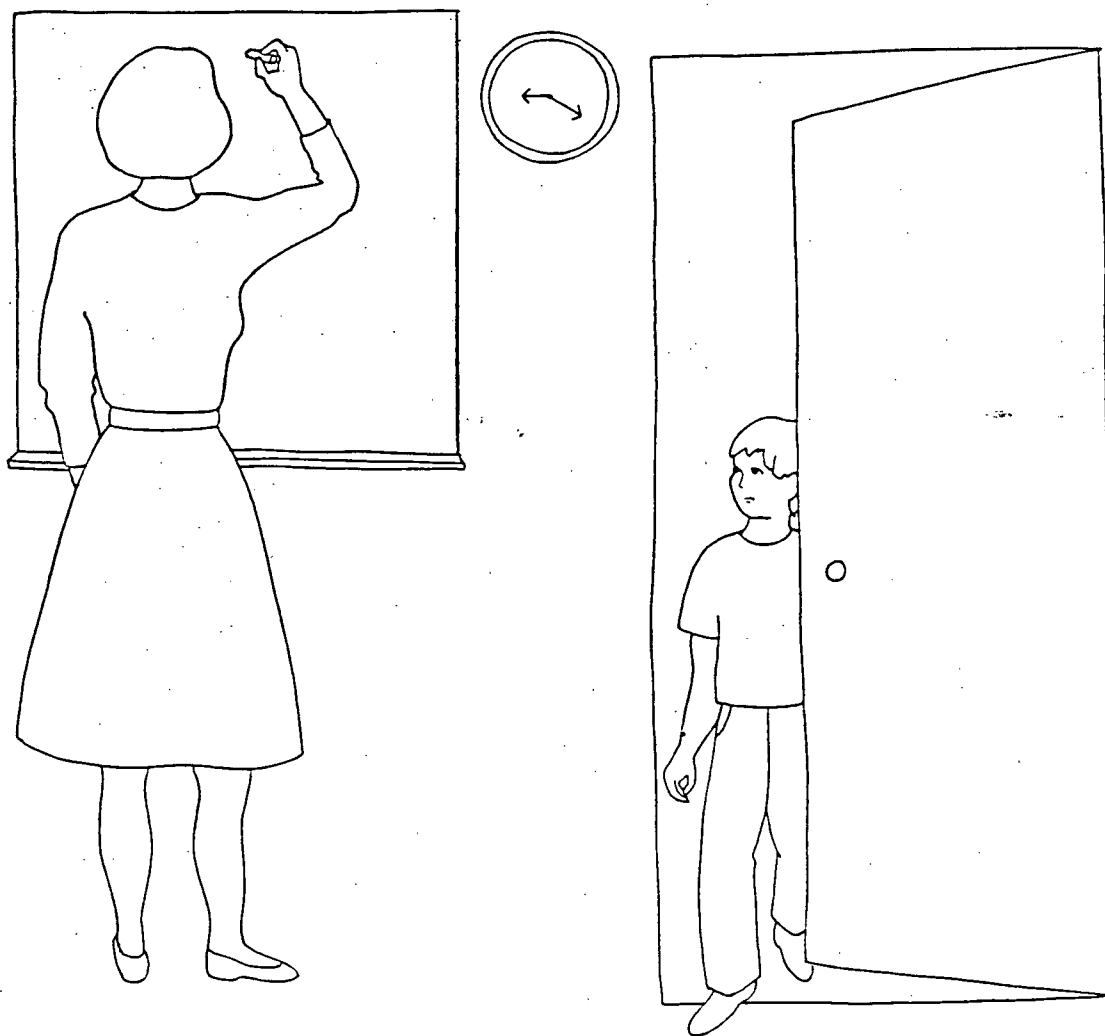


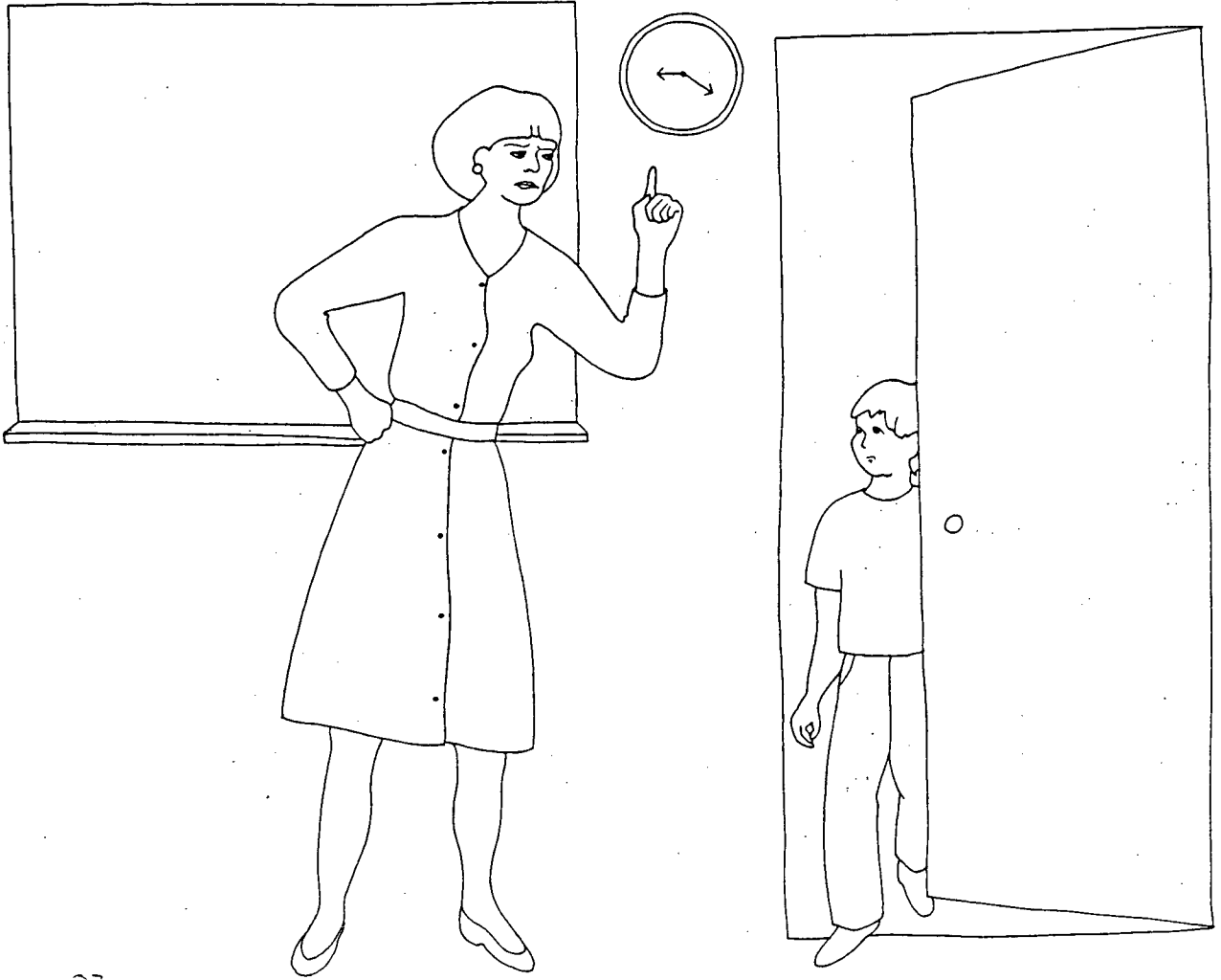


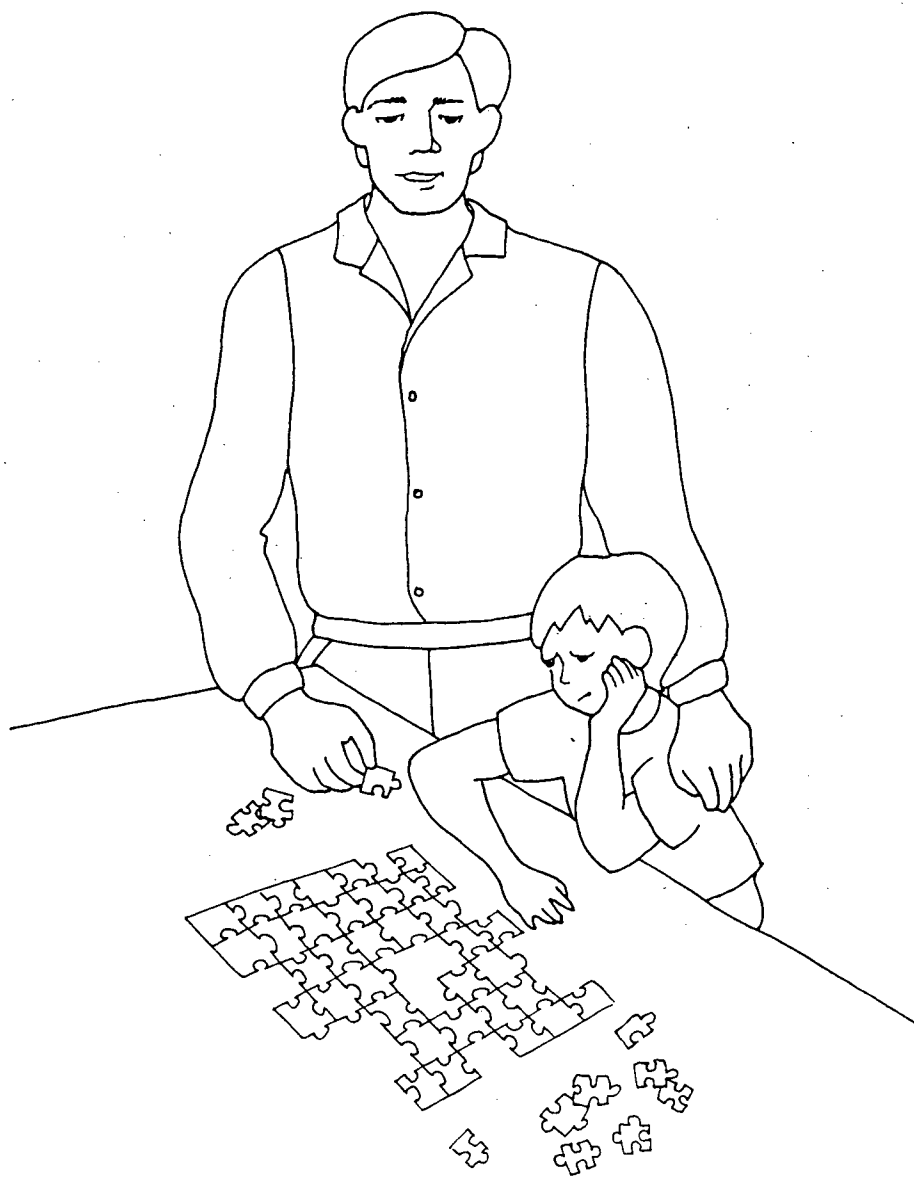




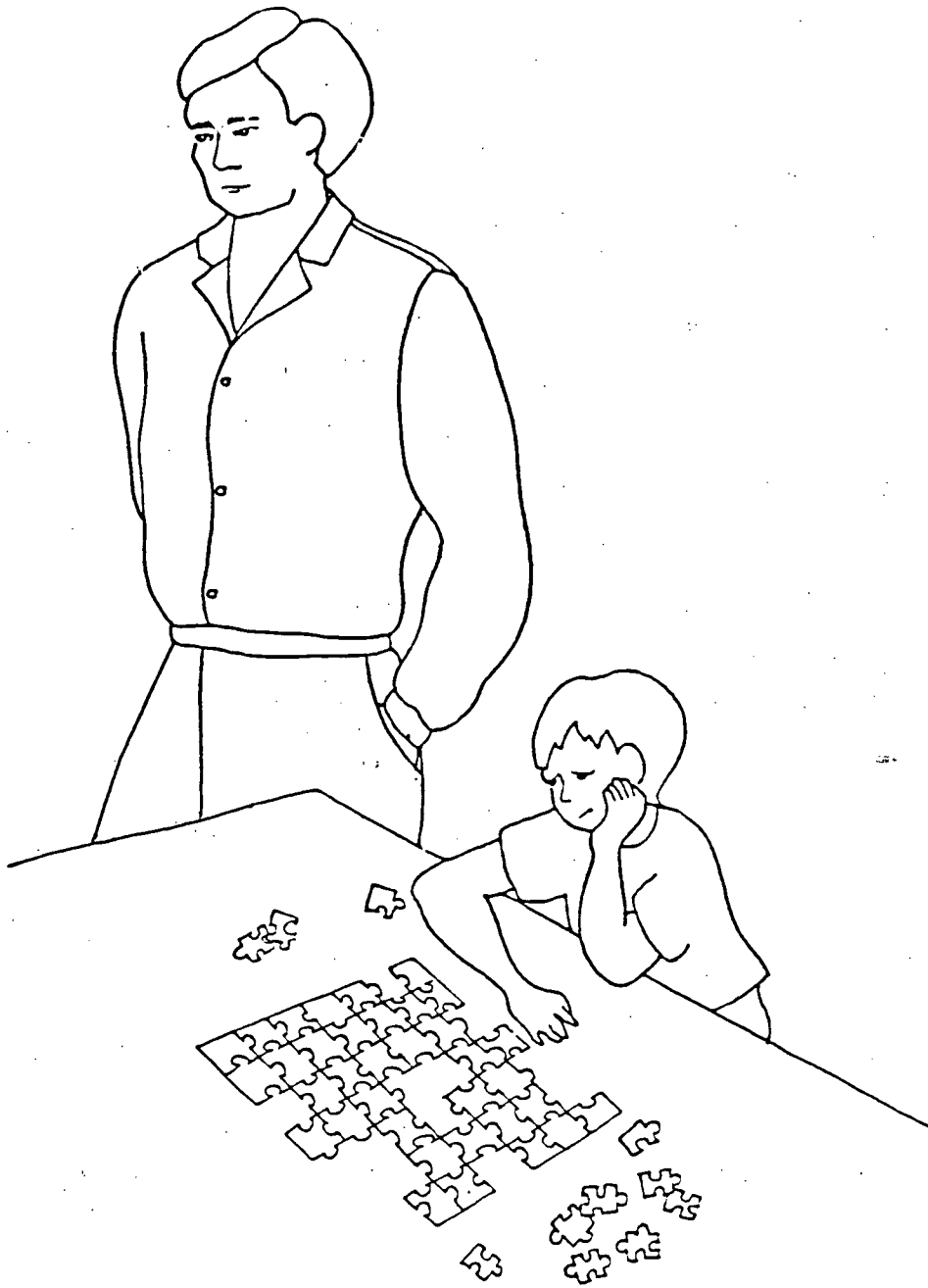






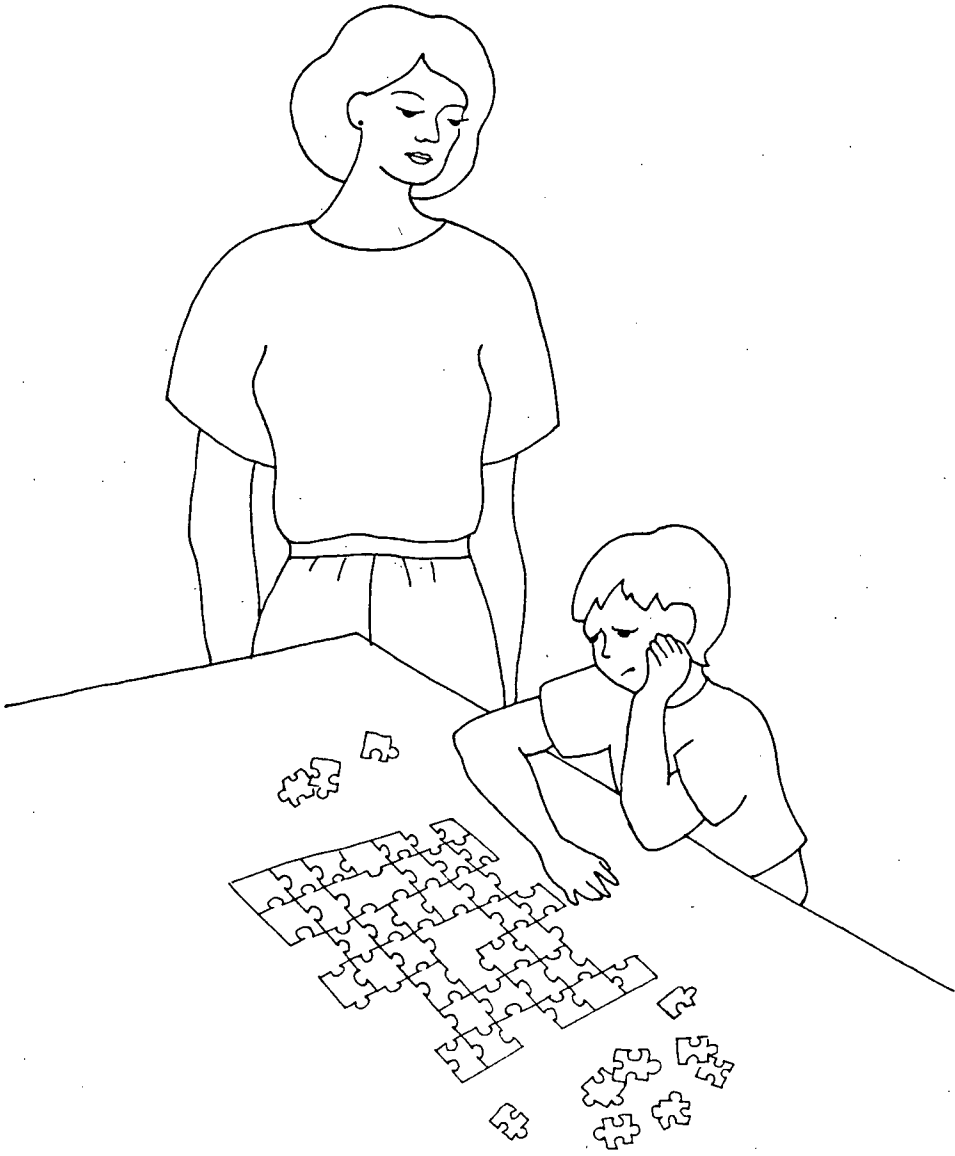


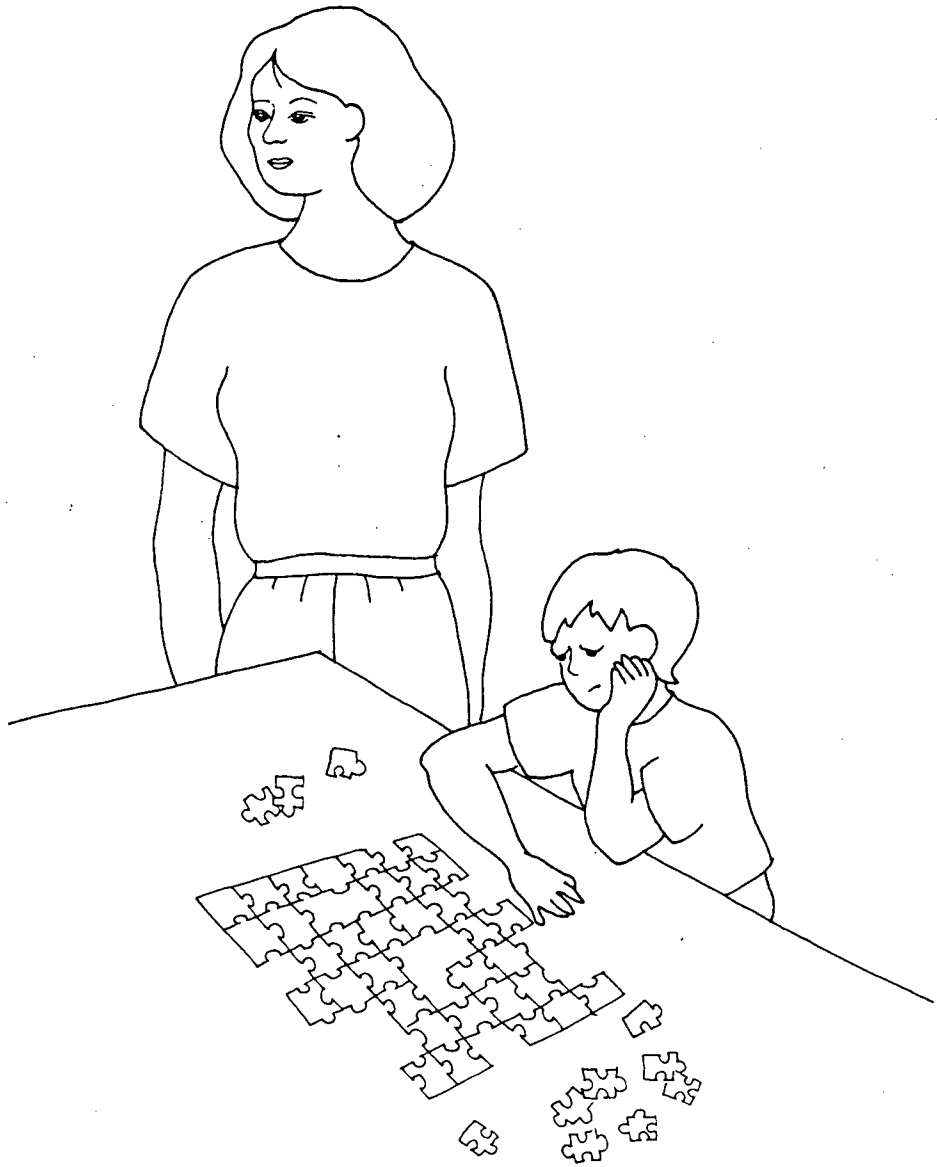


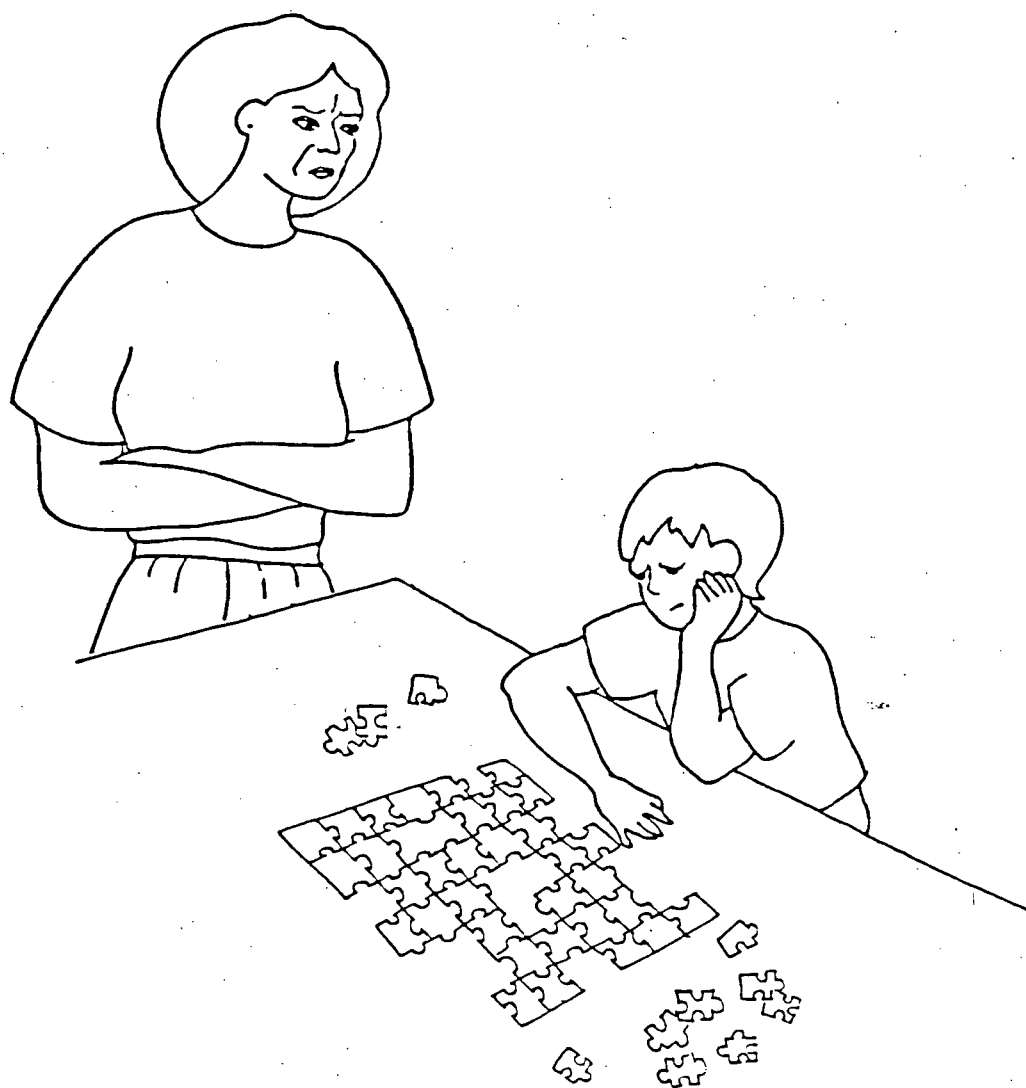




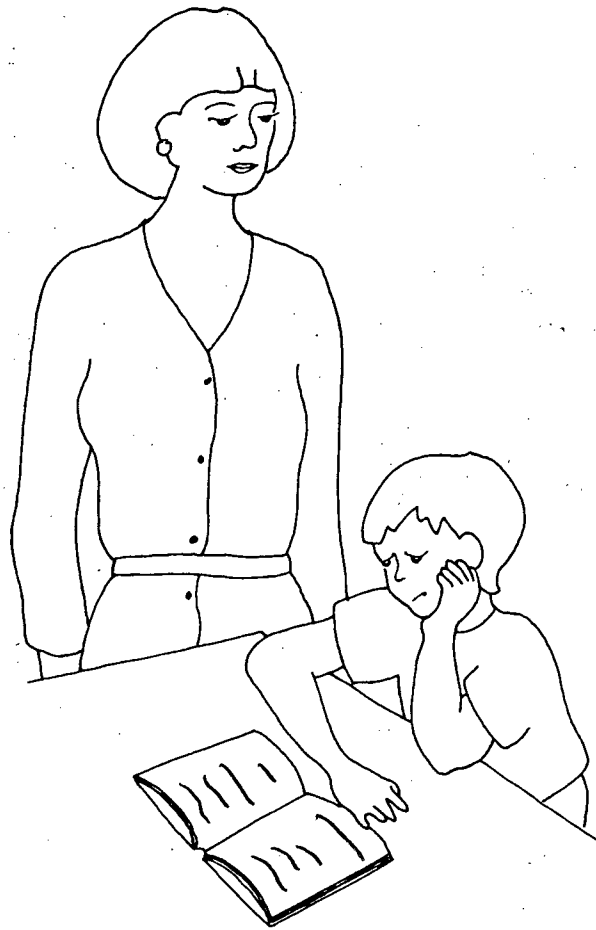


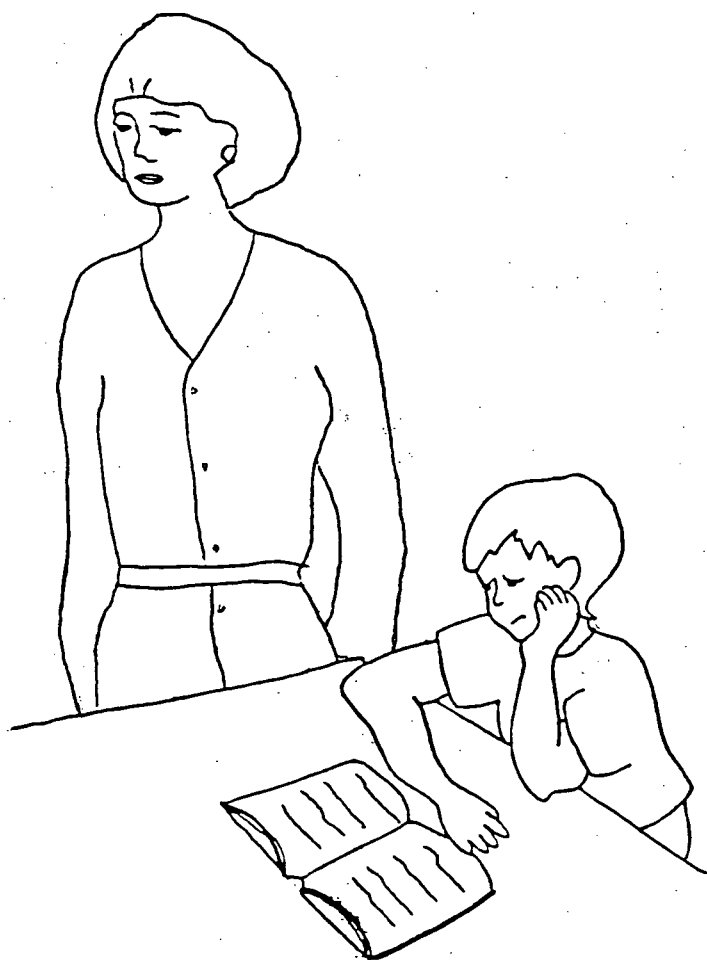




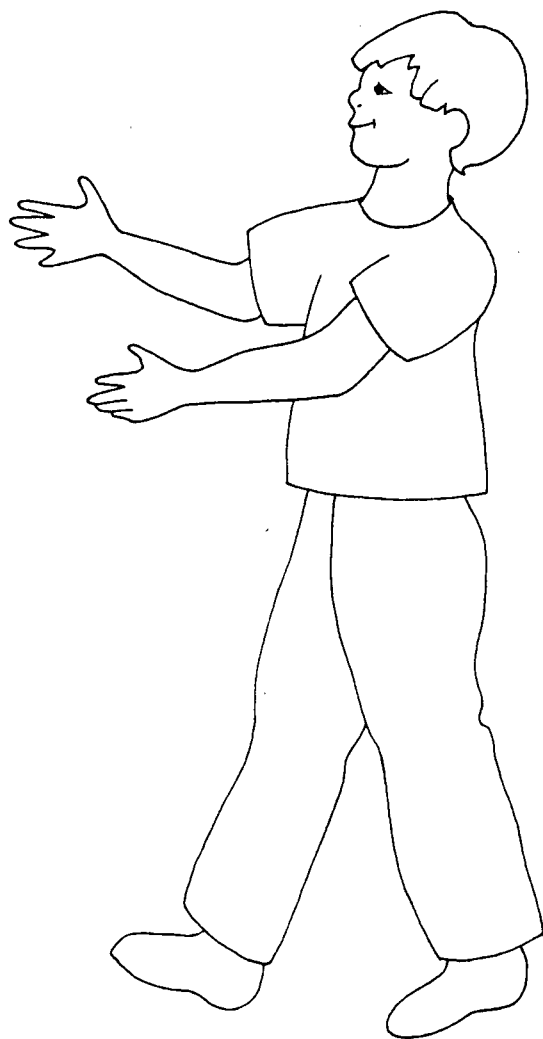
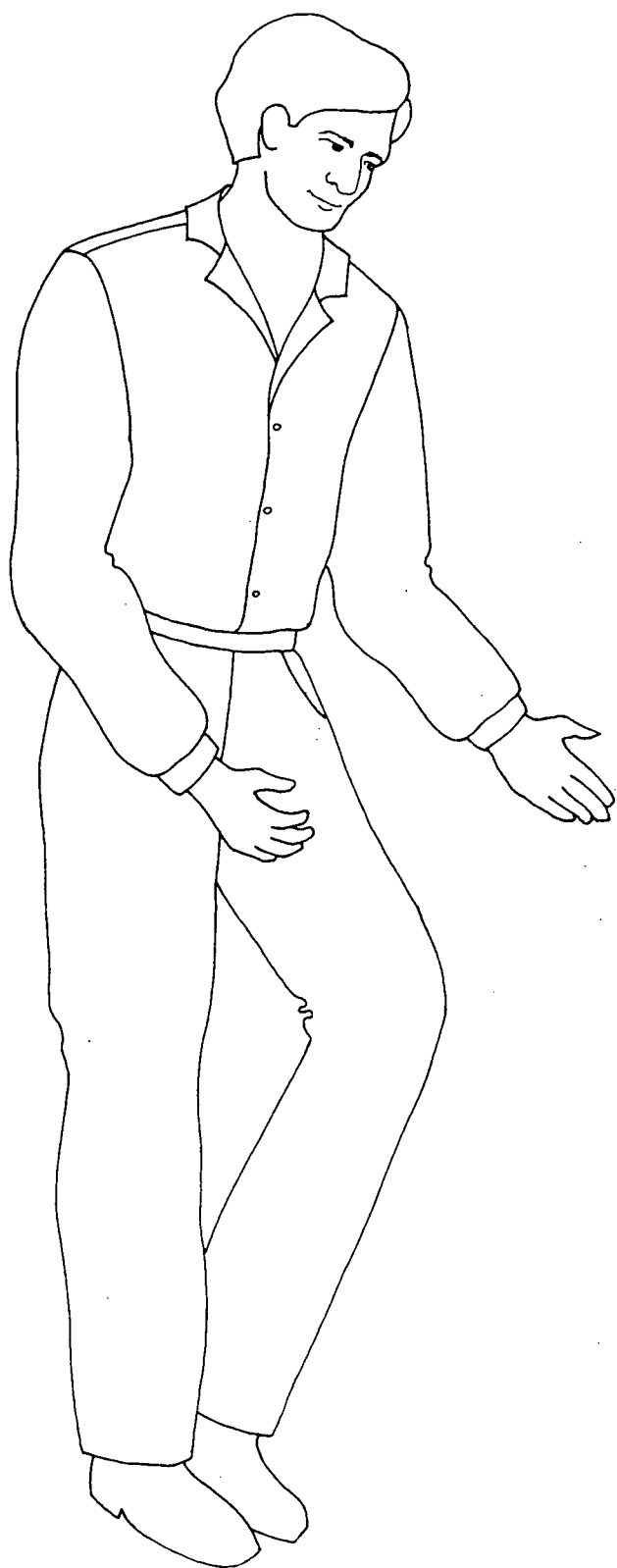


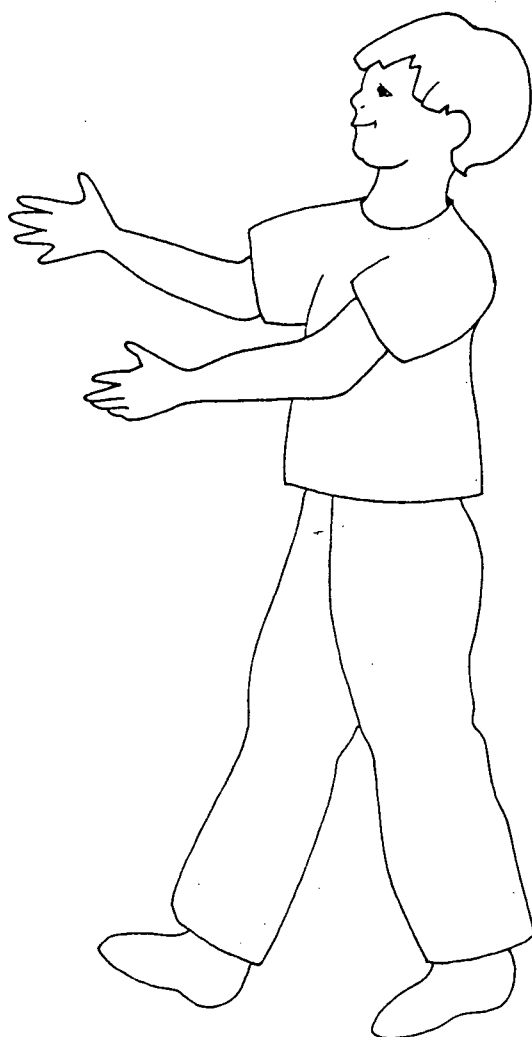
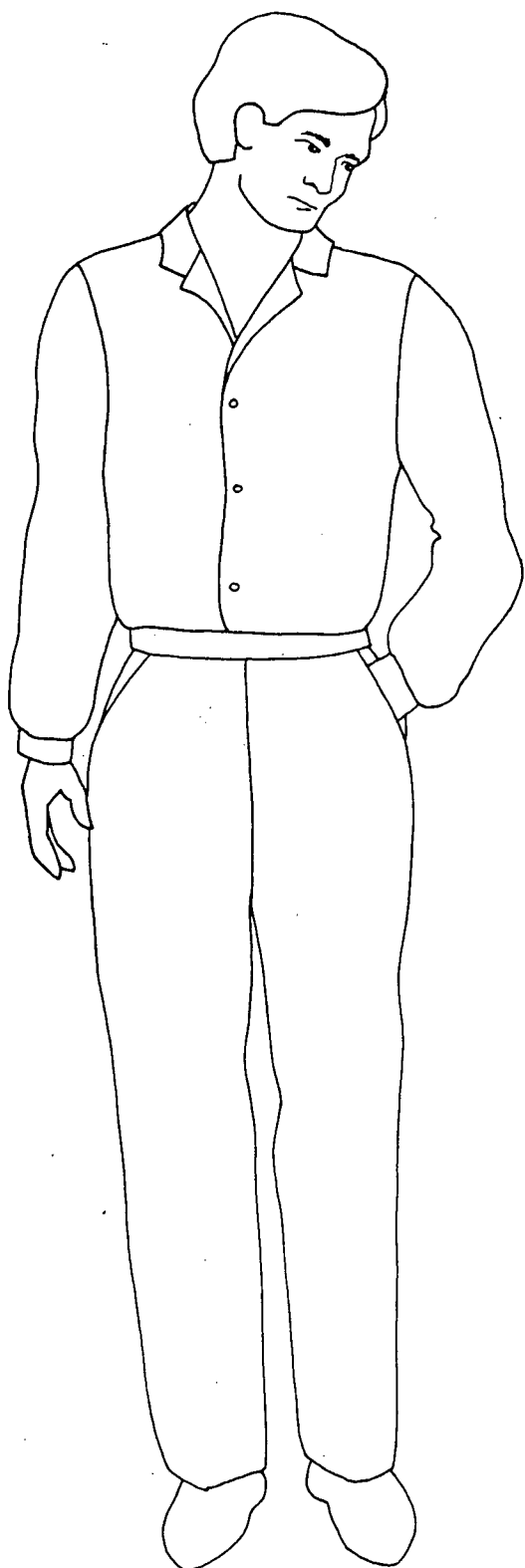


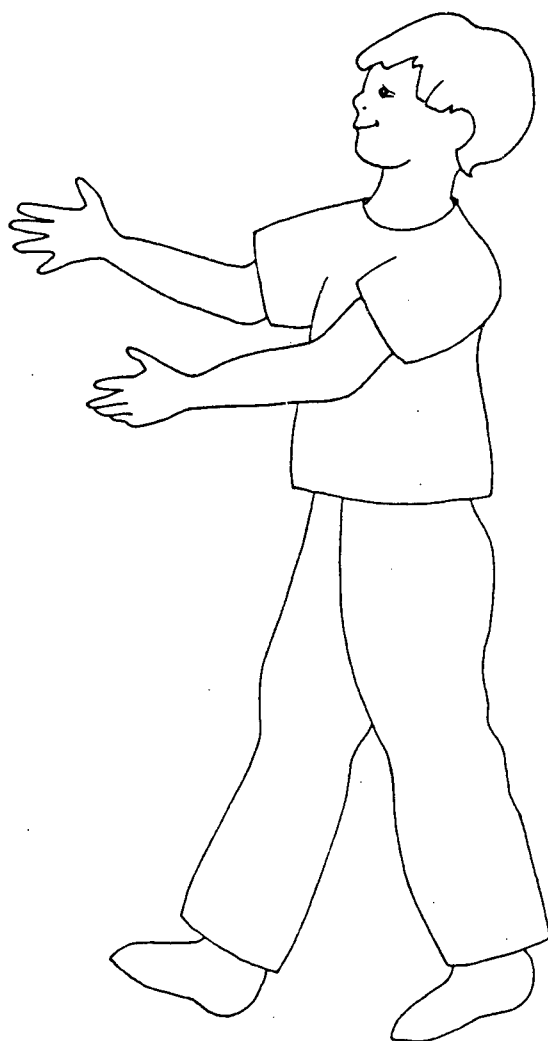
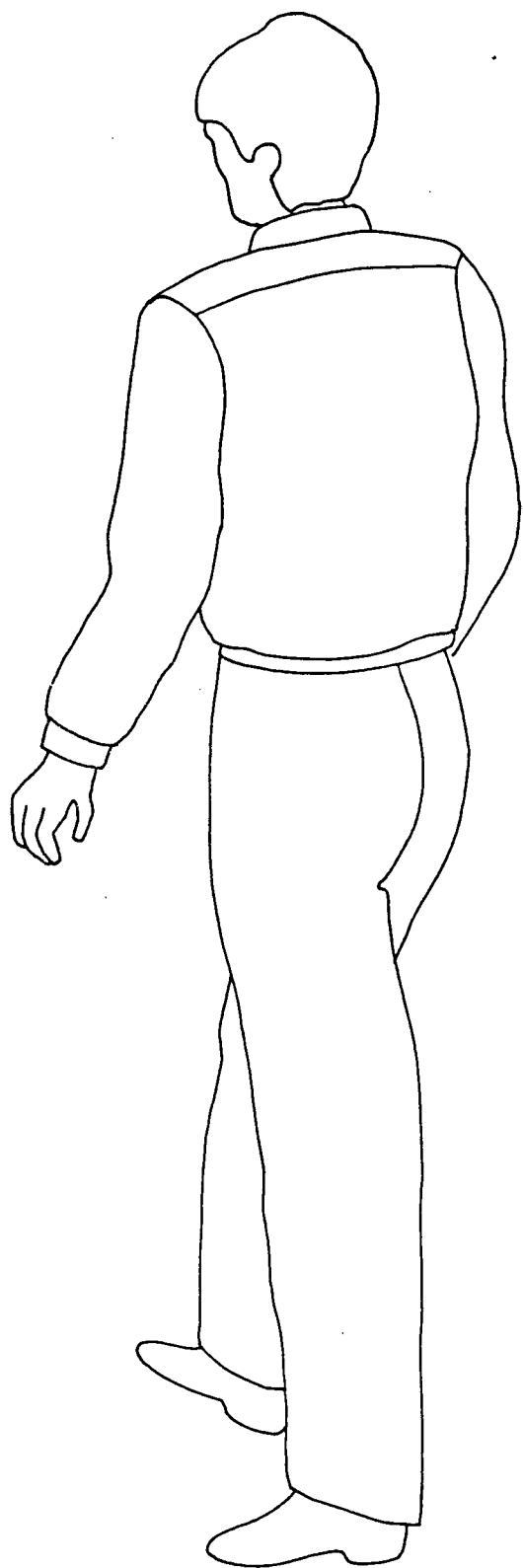


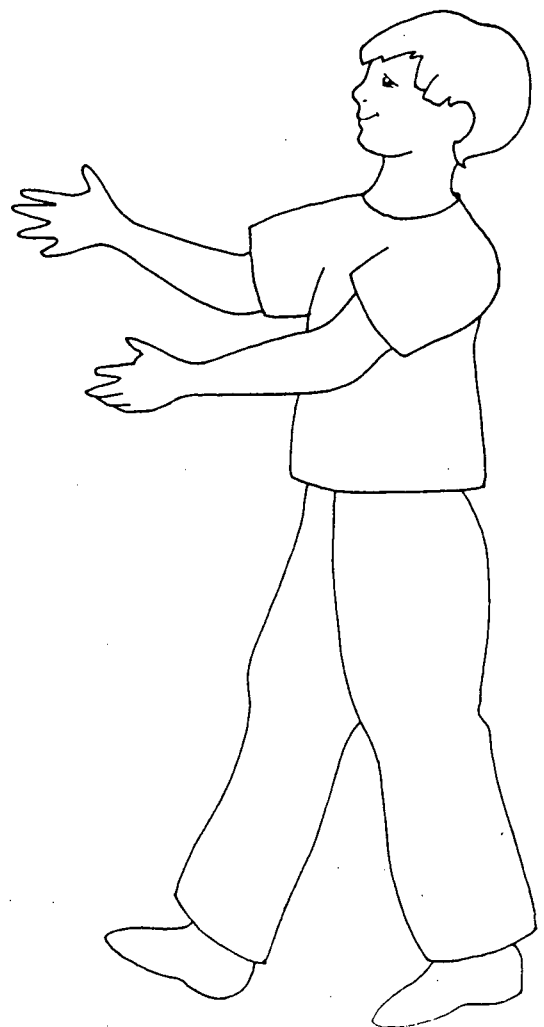


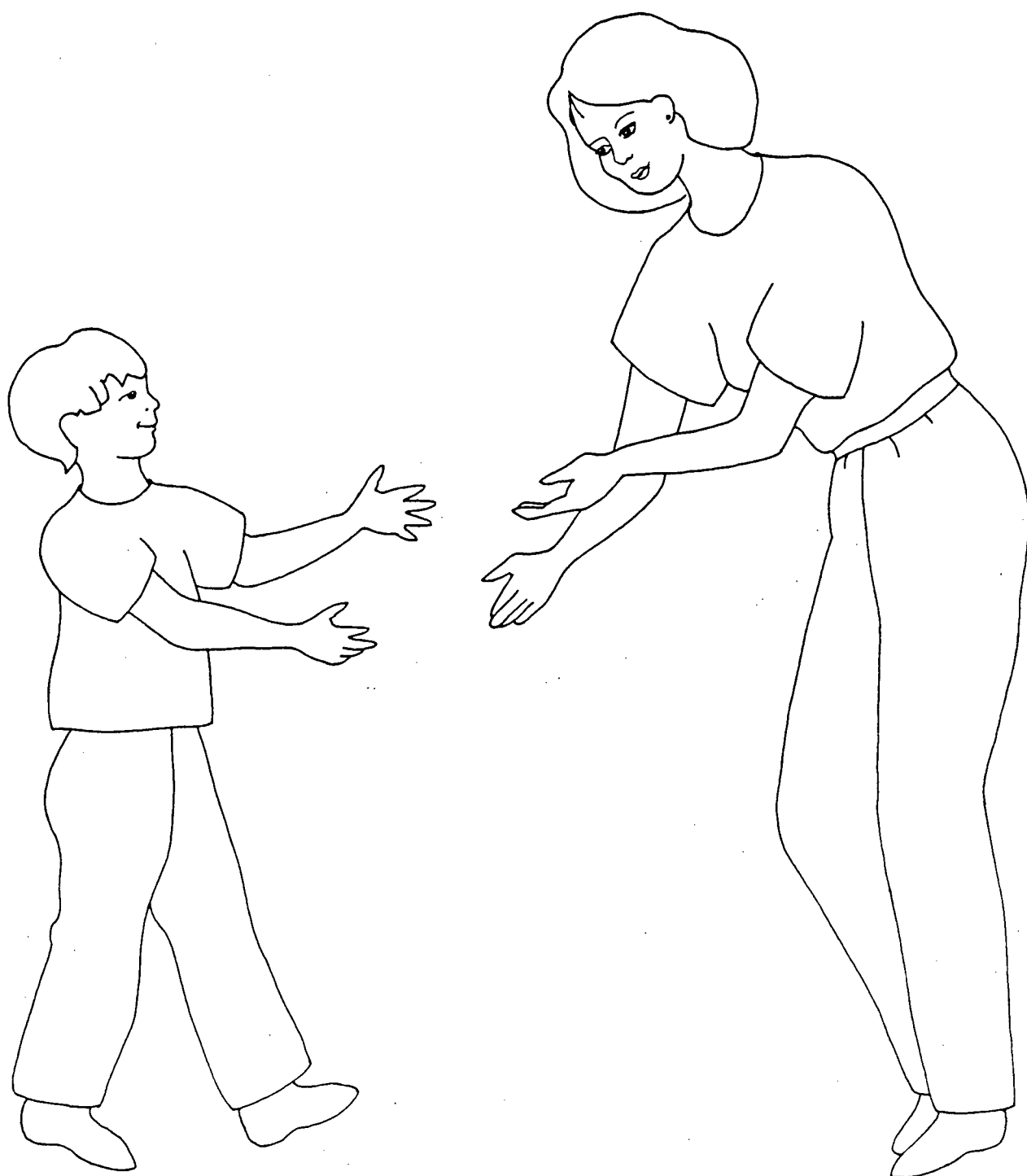


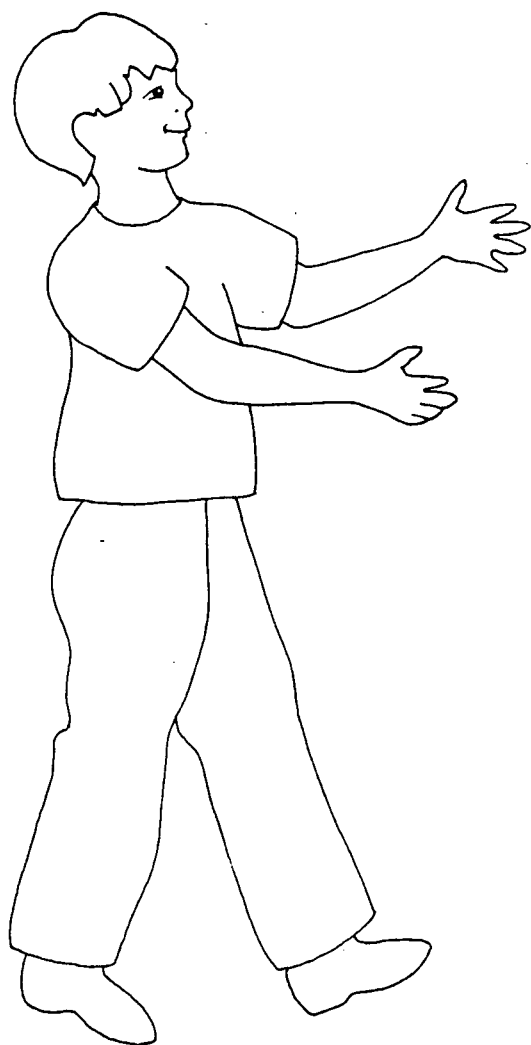




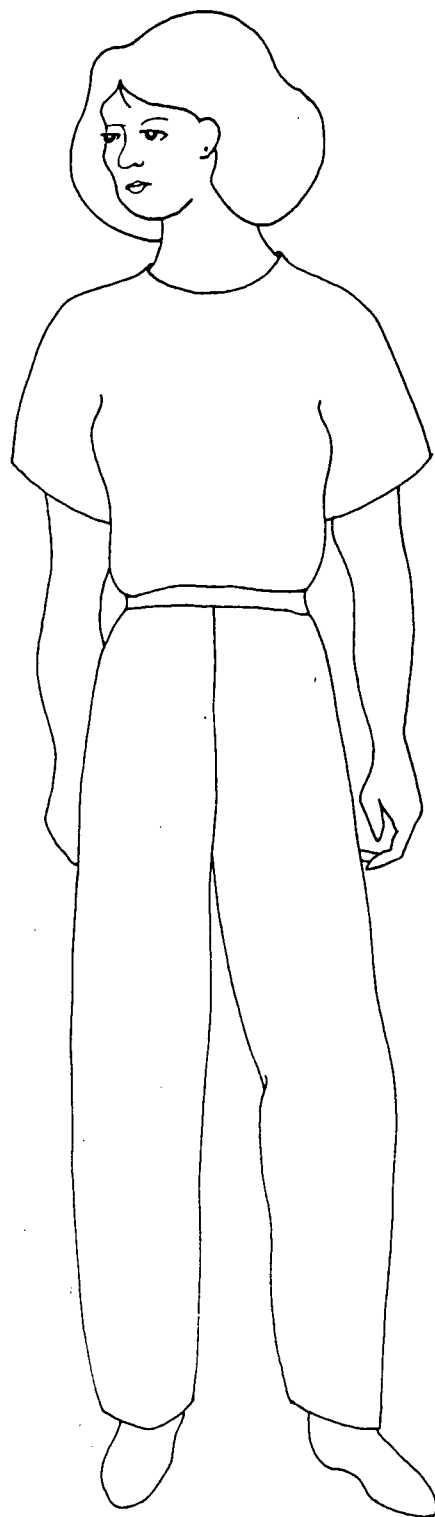


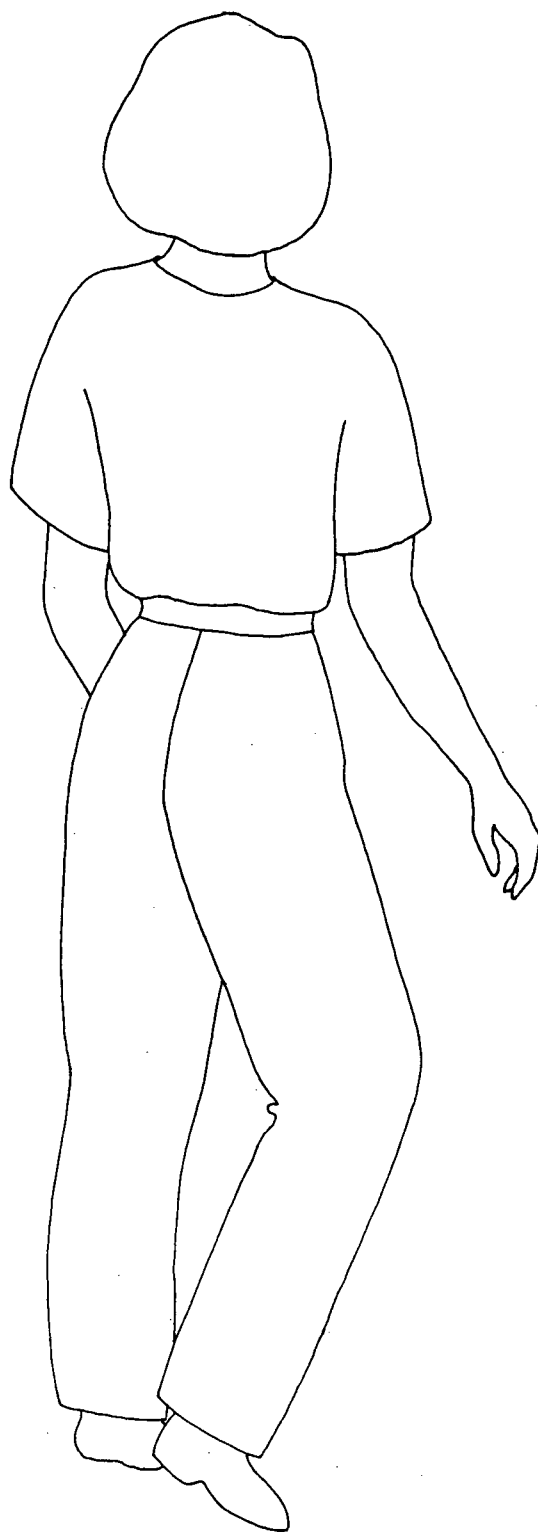
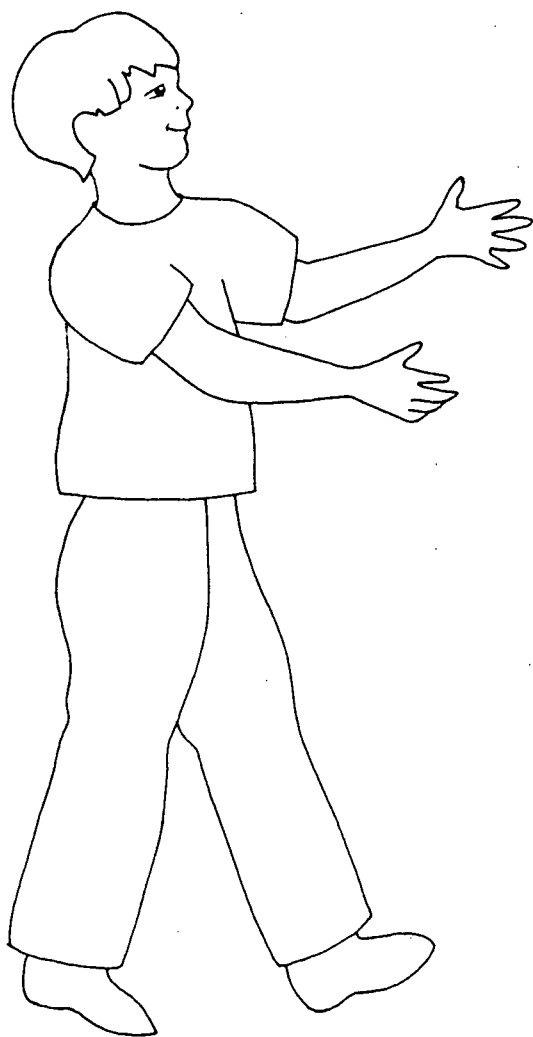


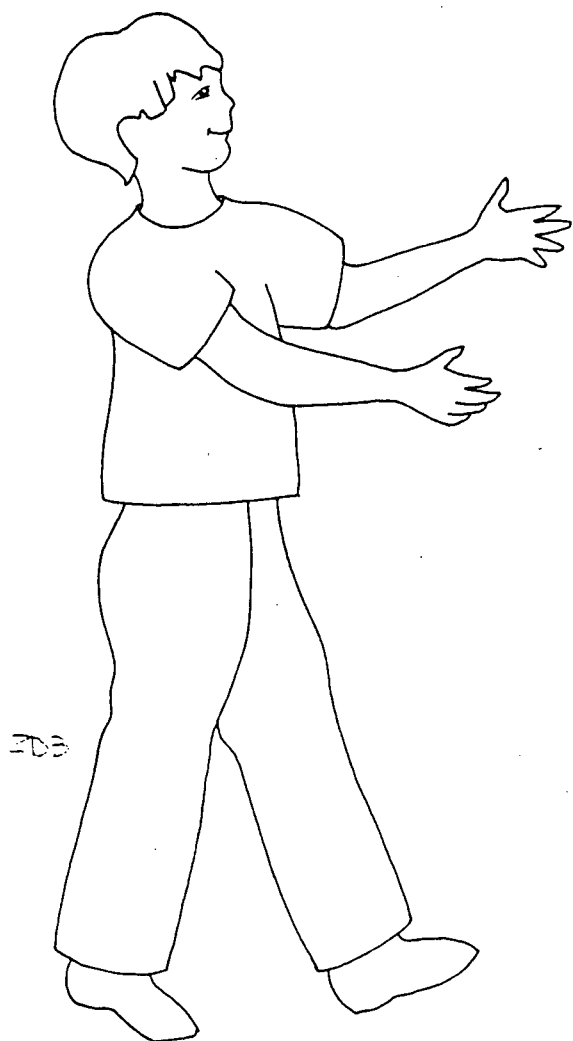


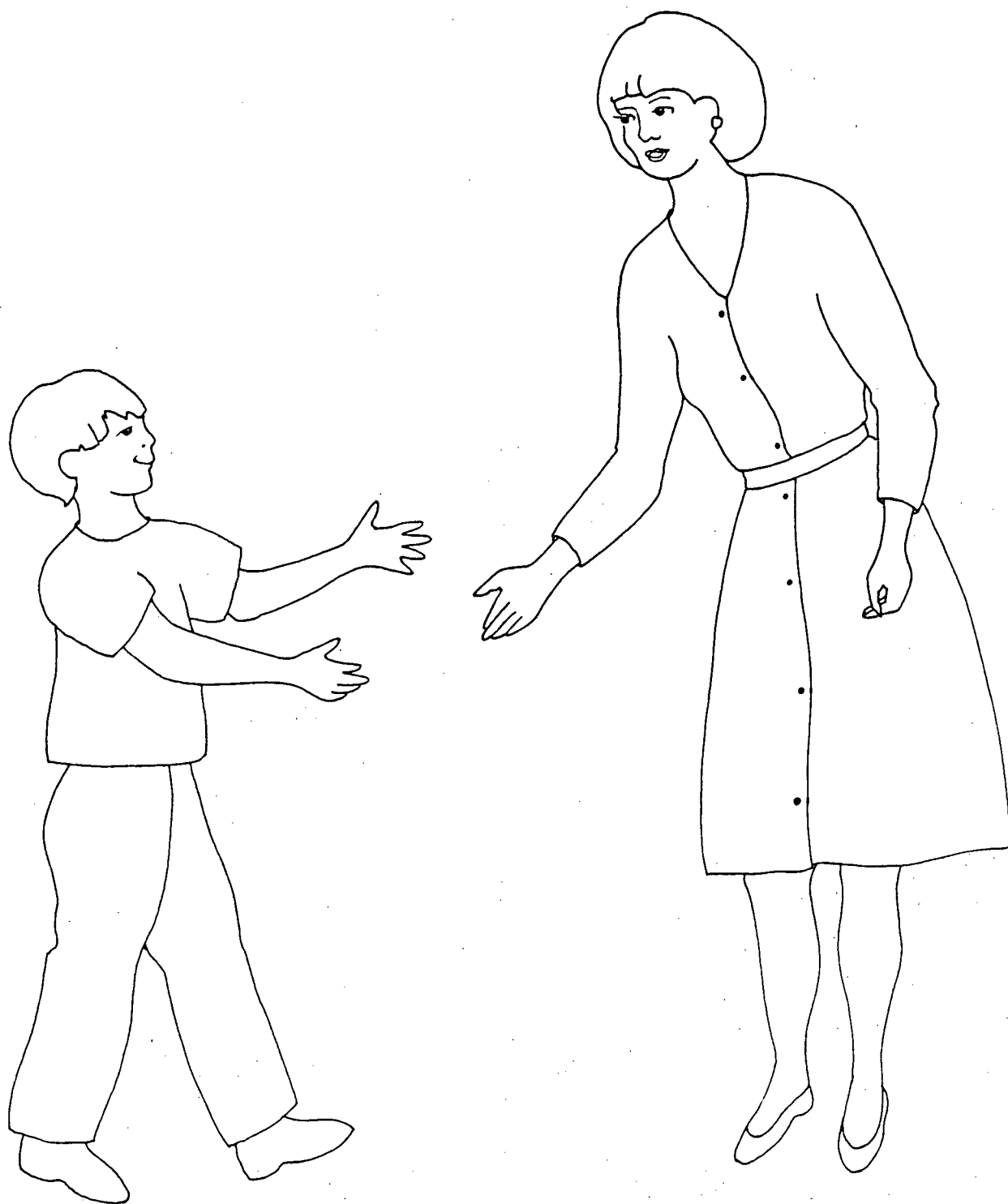


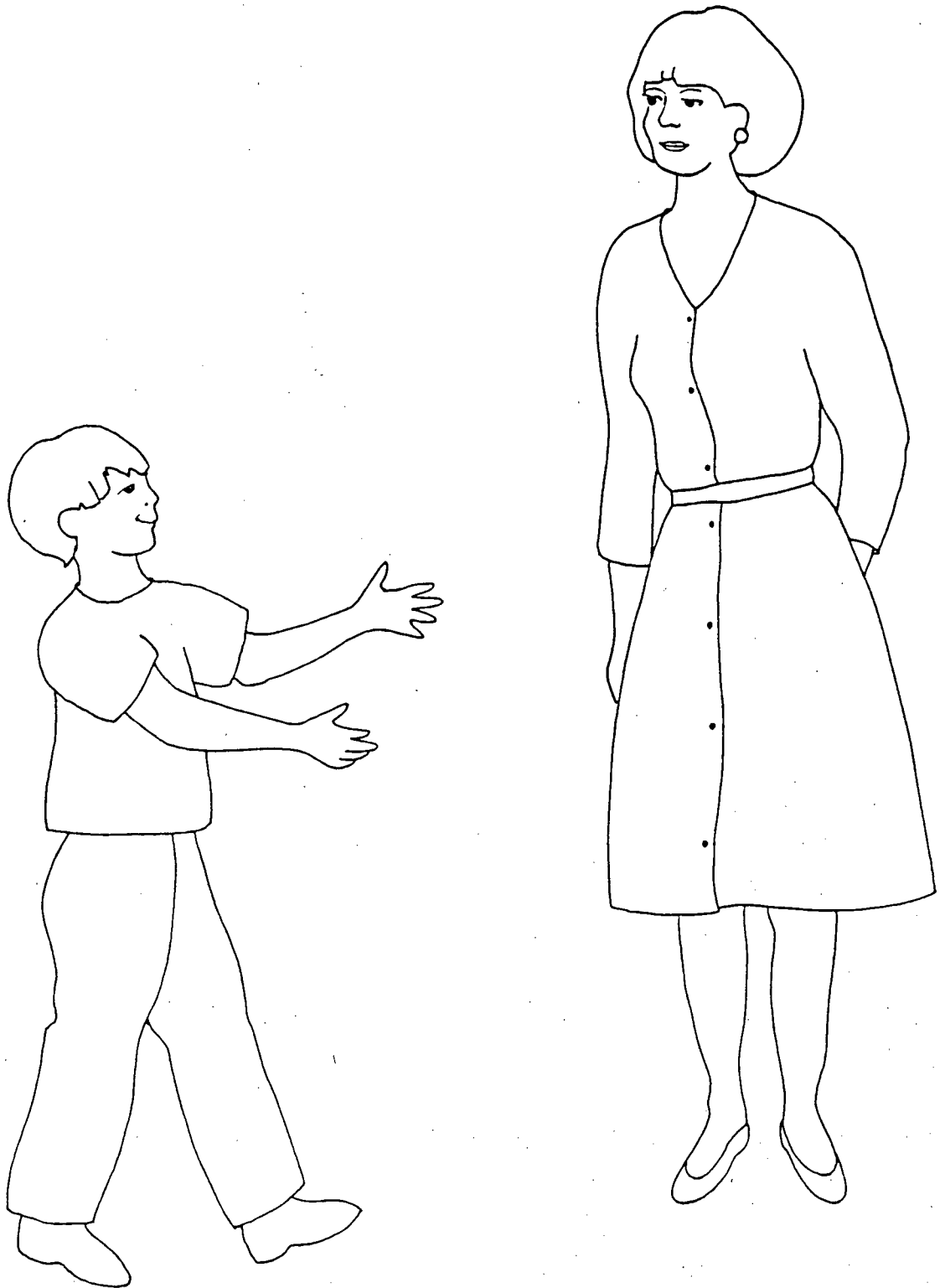
2A2
272

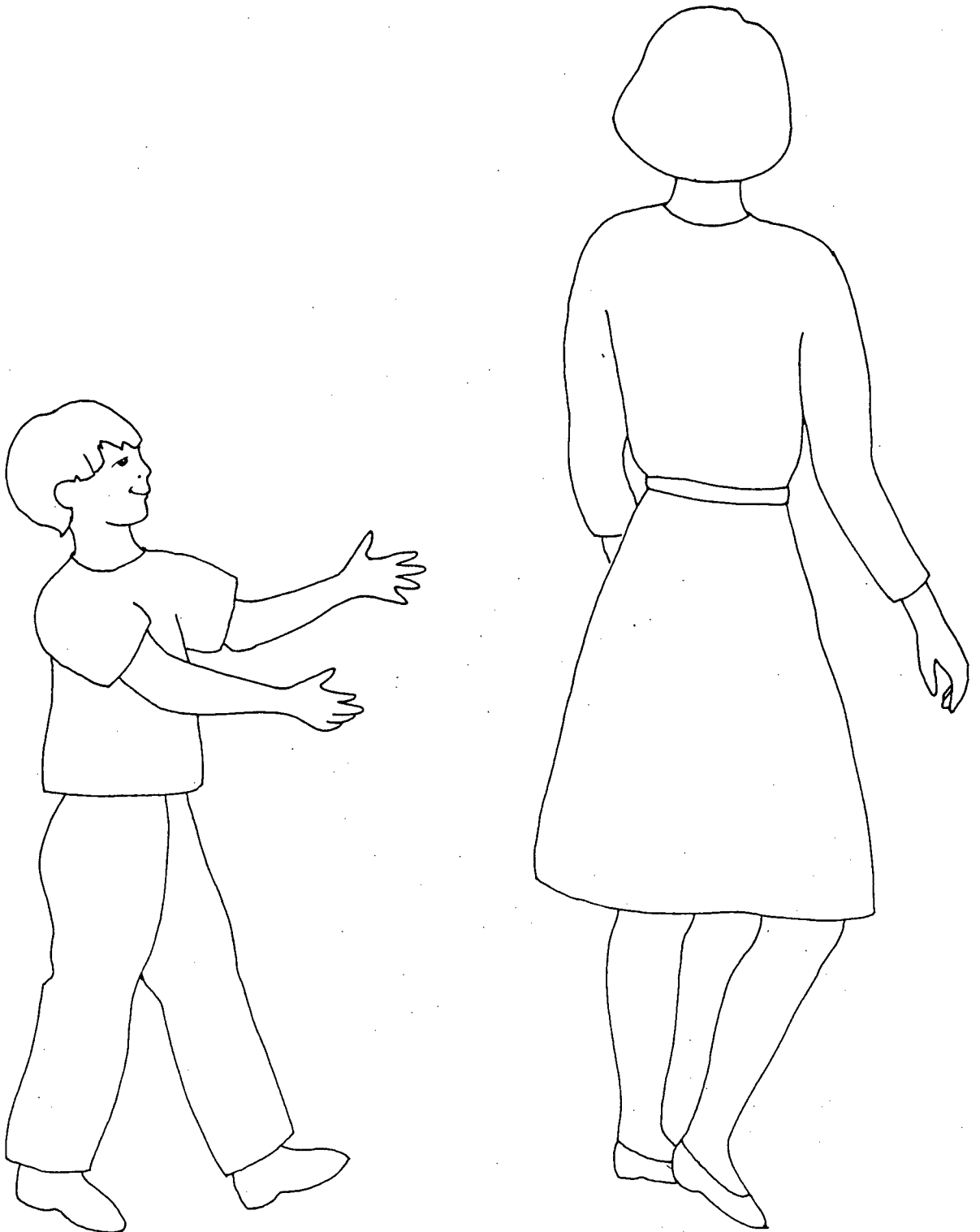


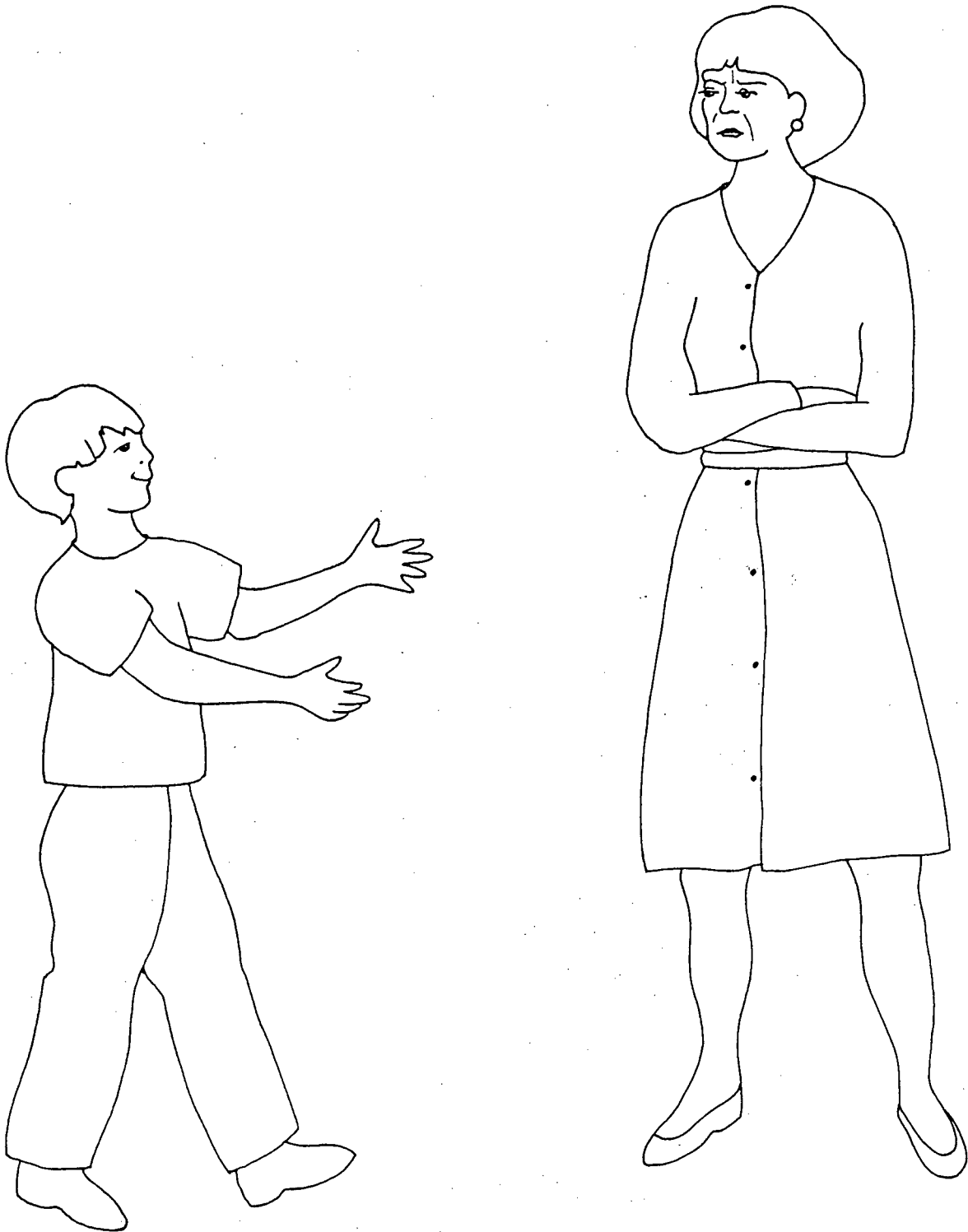


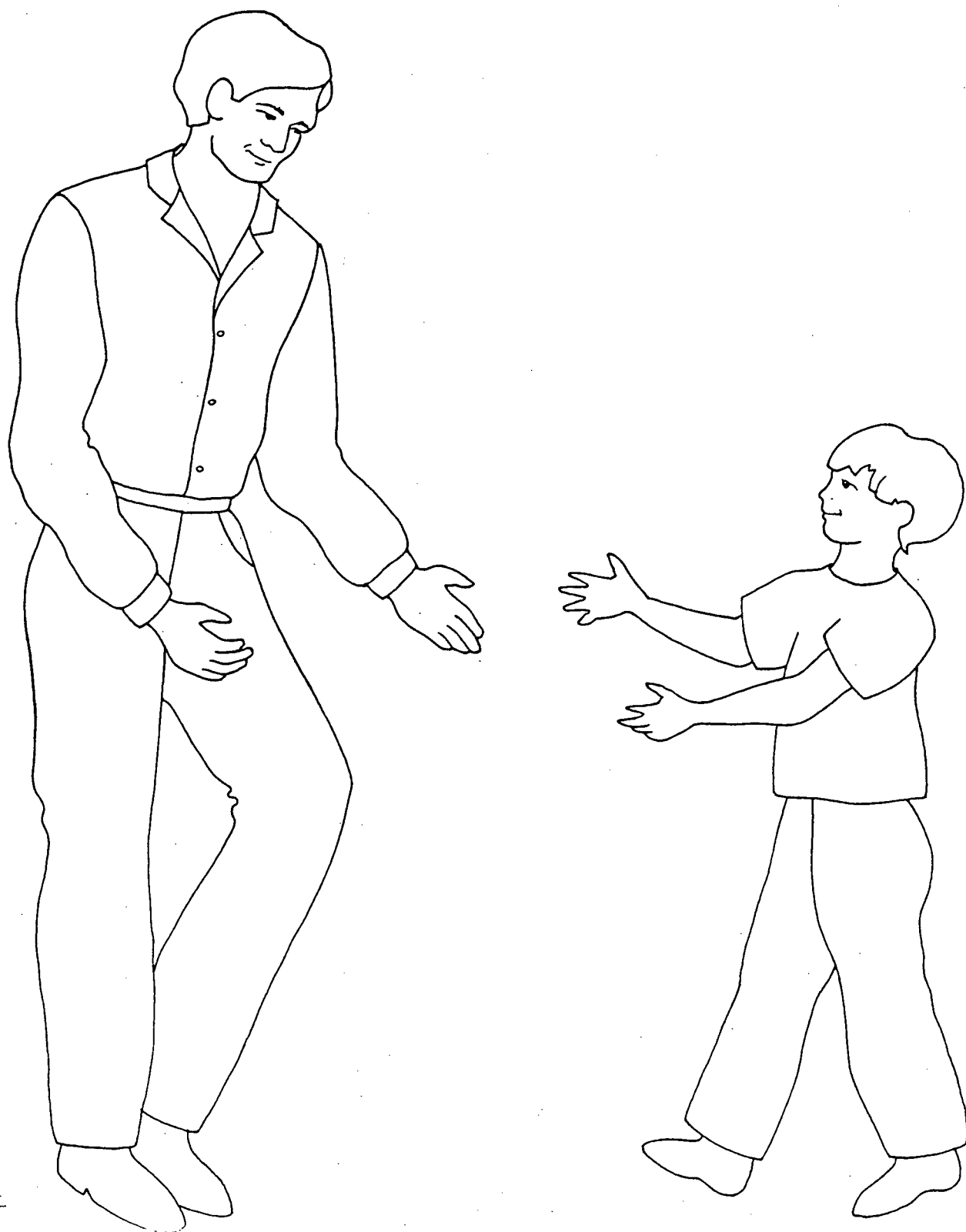


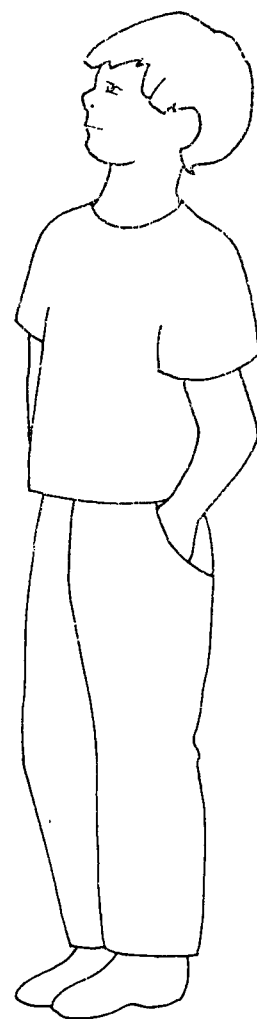
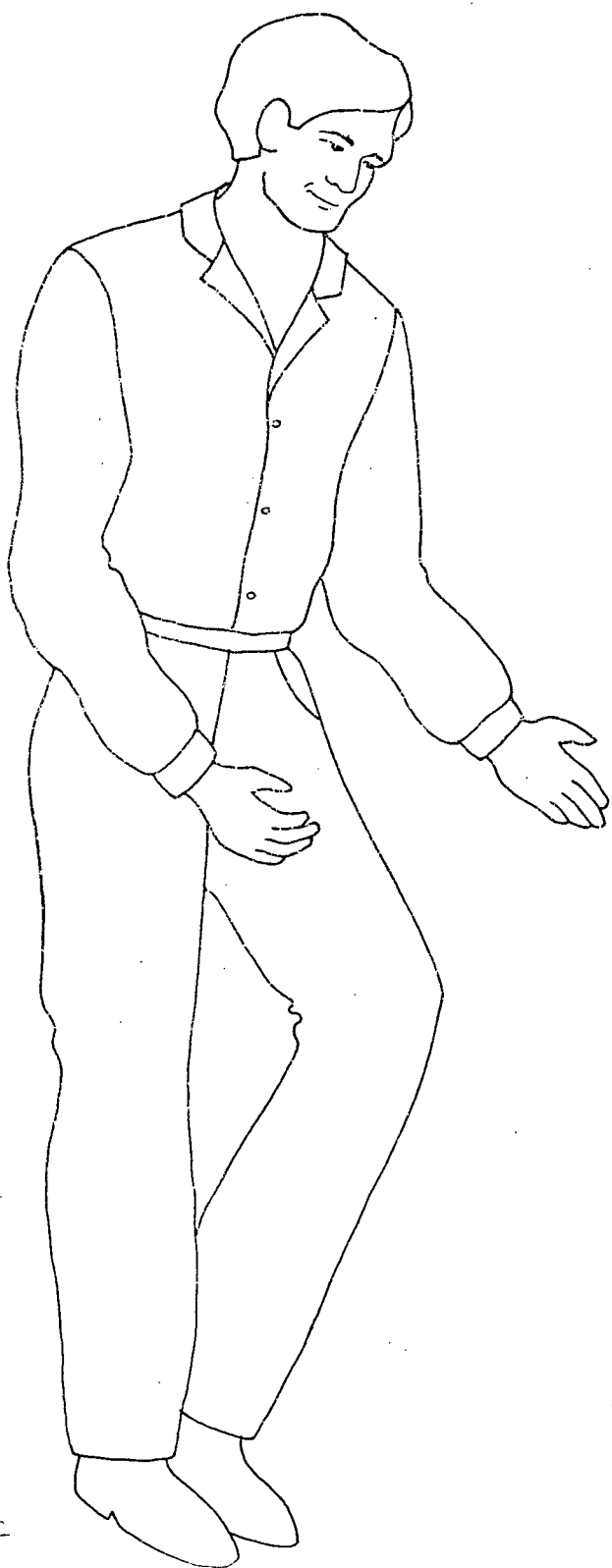


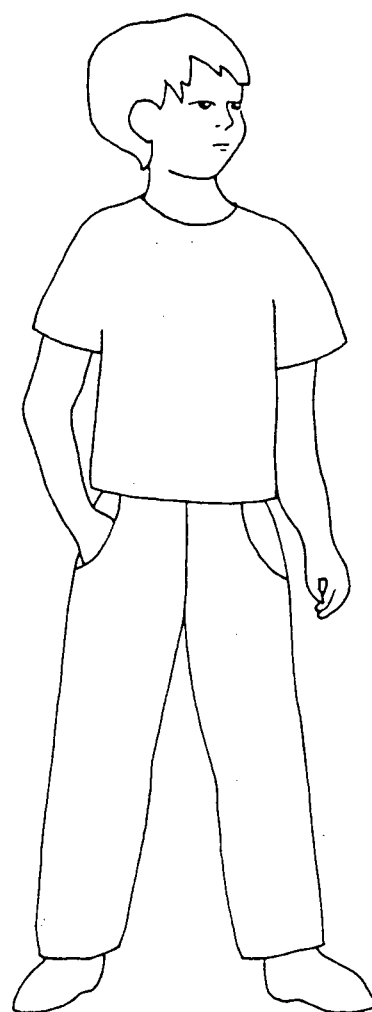
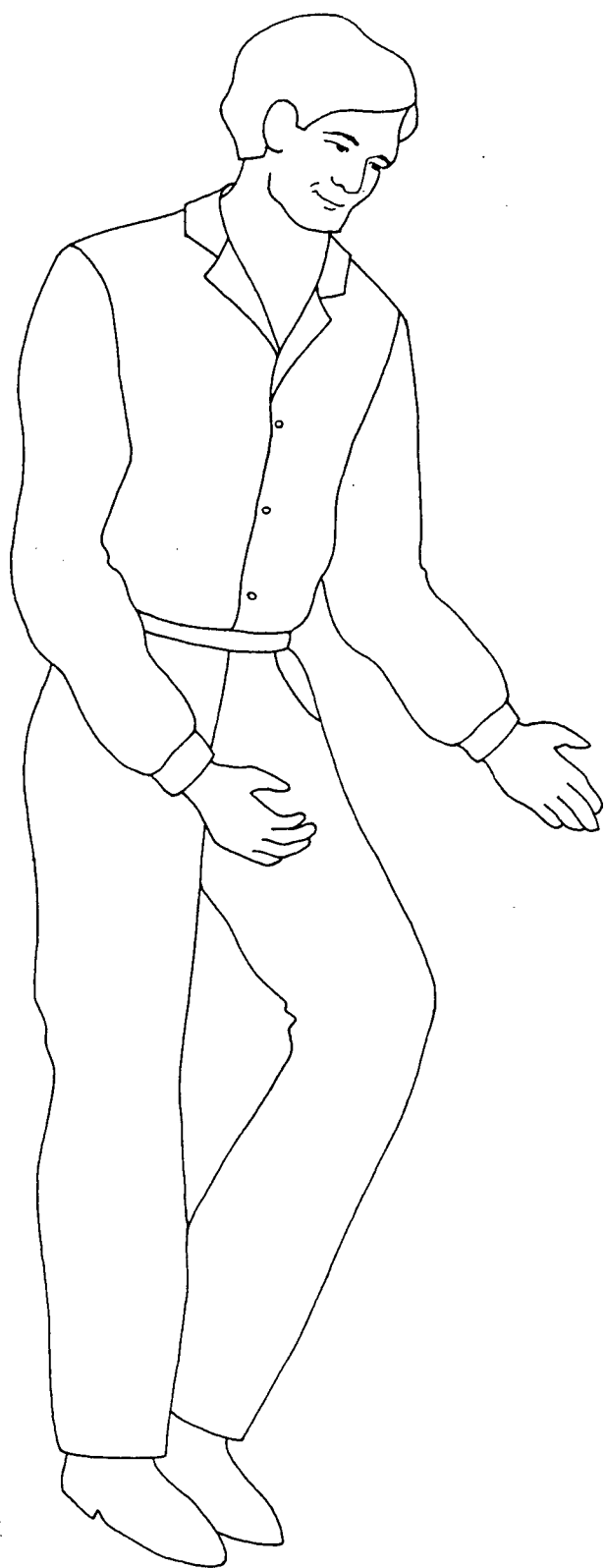


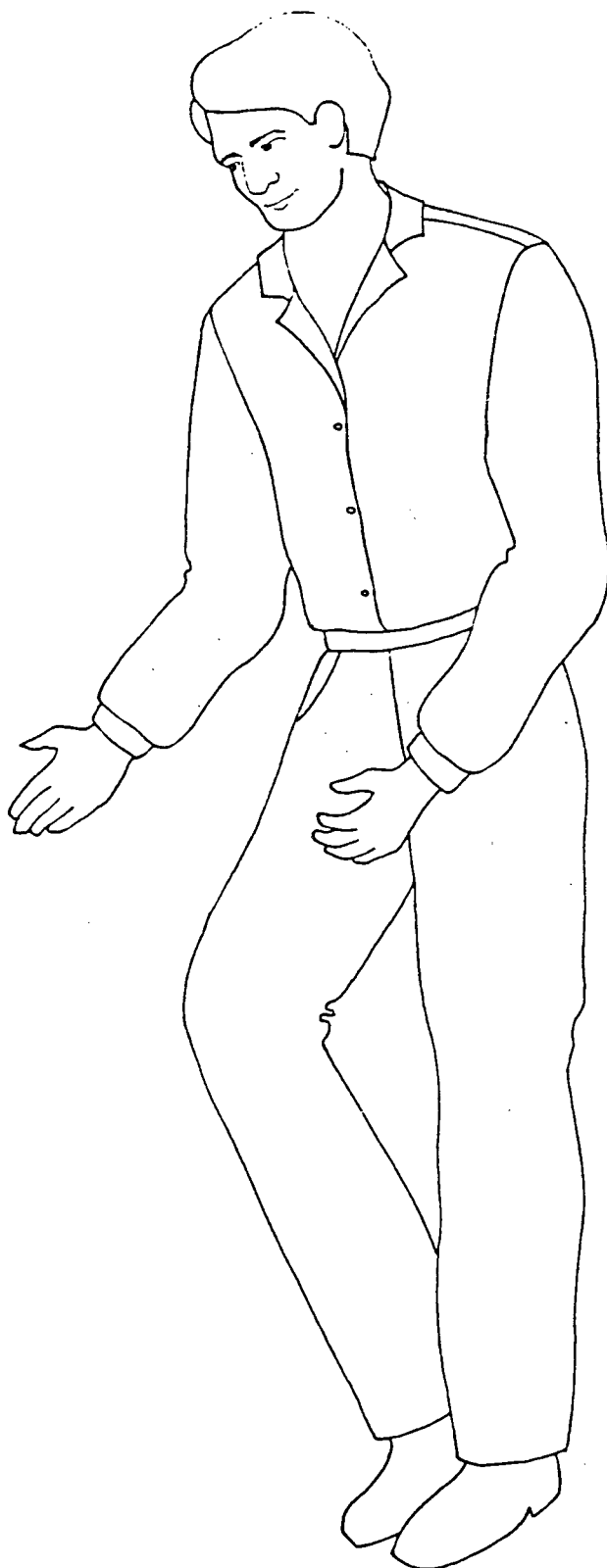
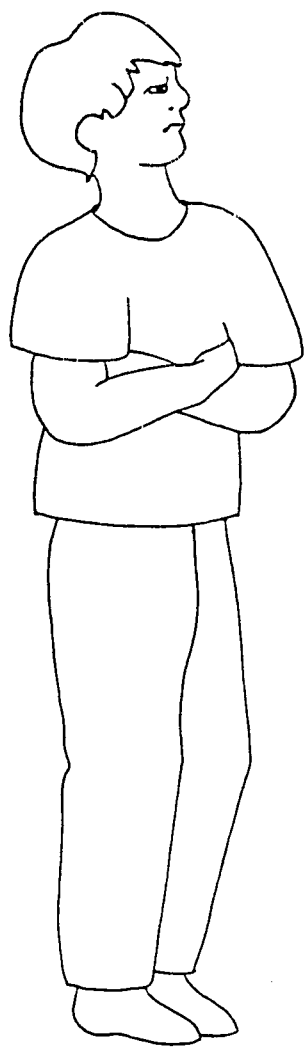






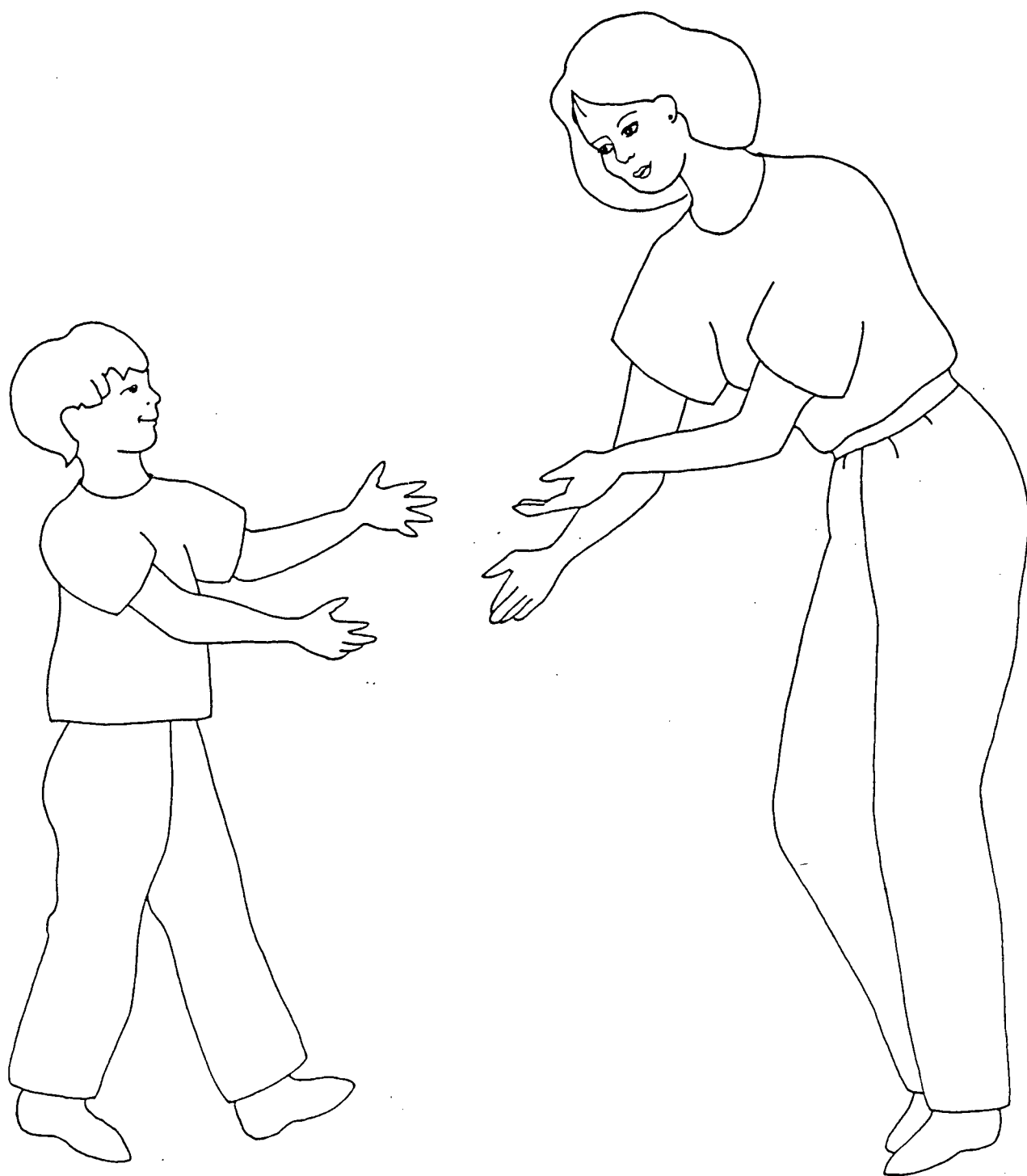


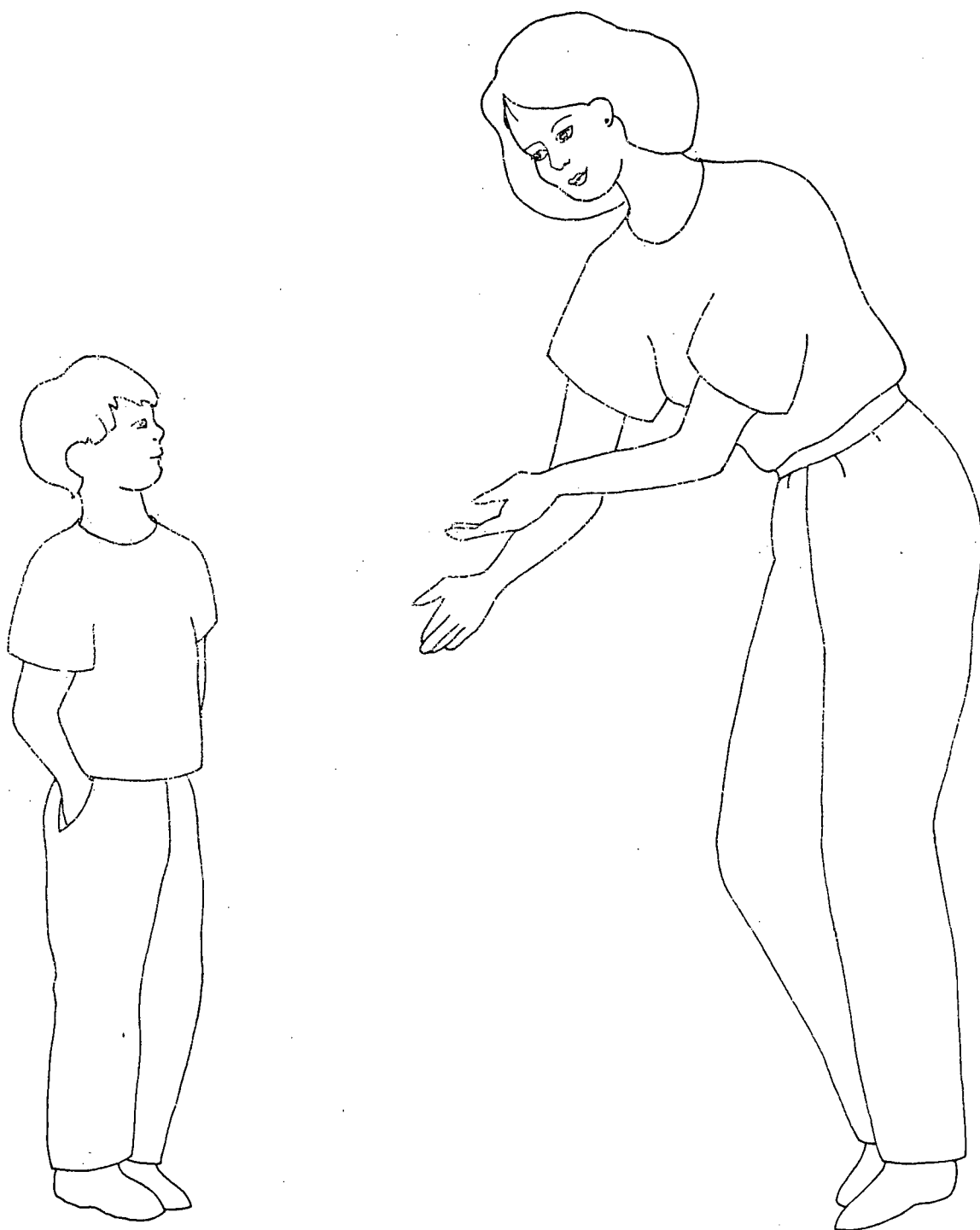


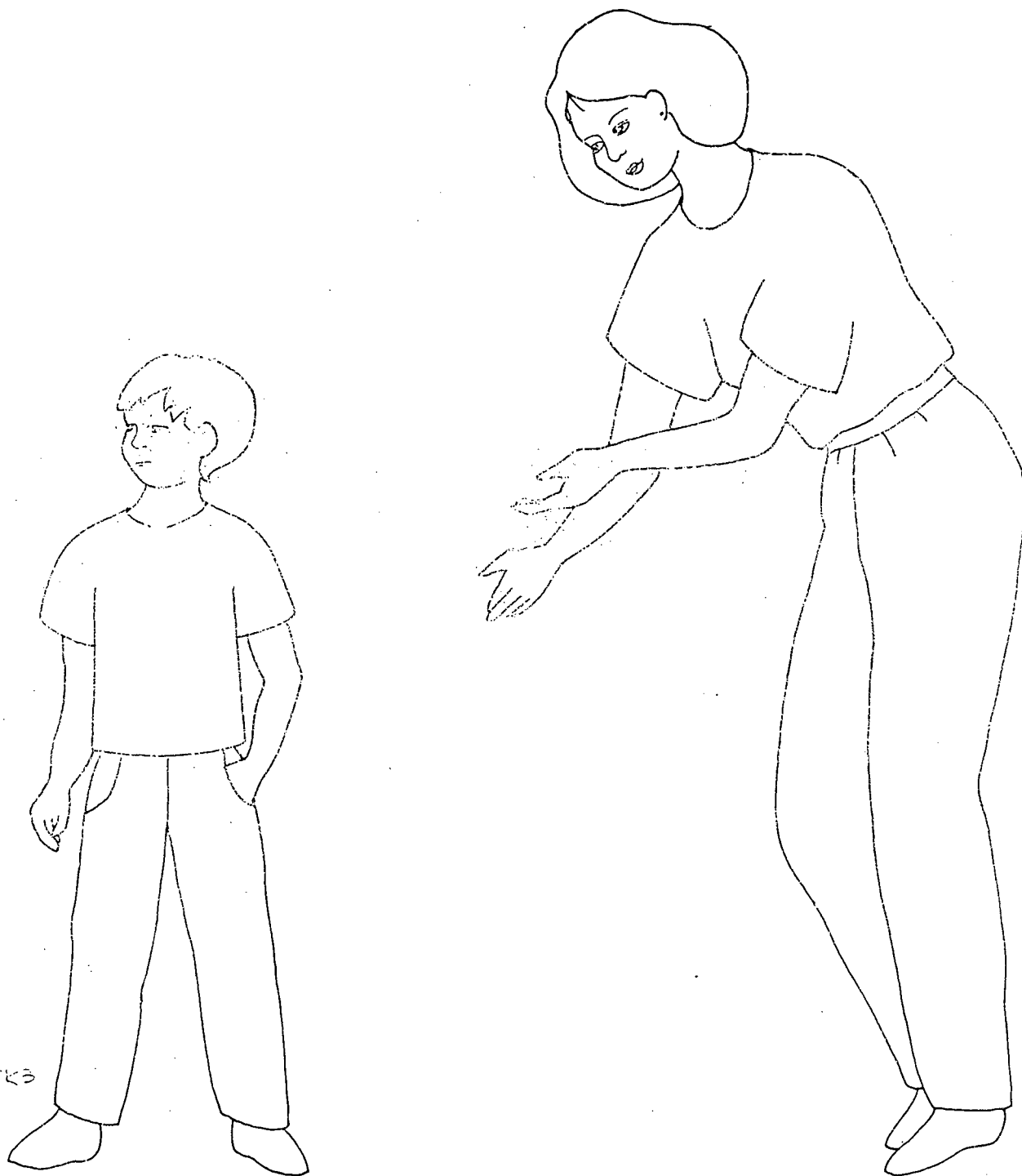


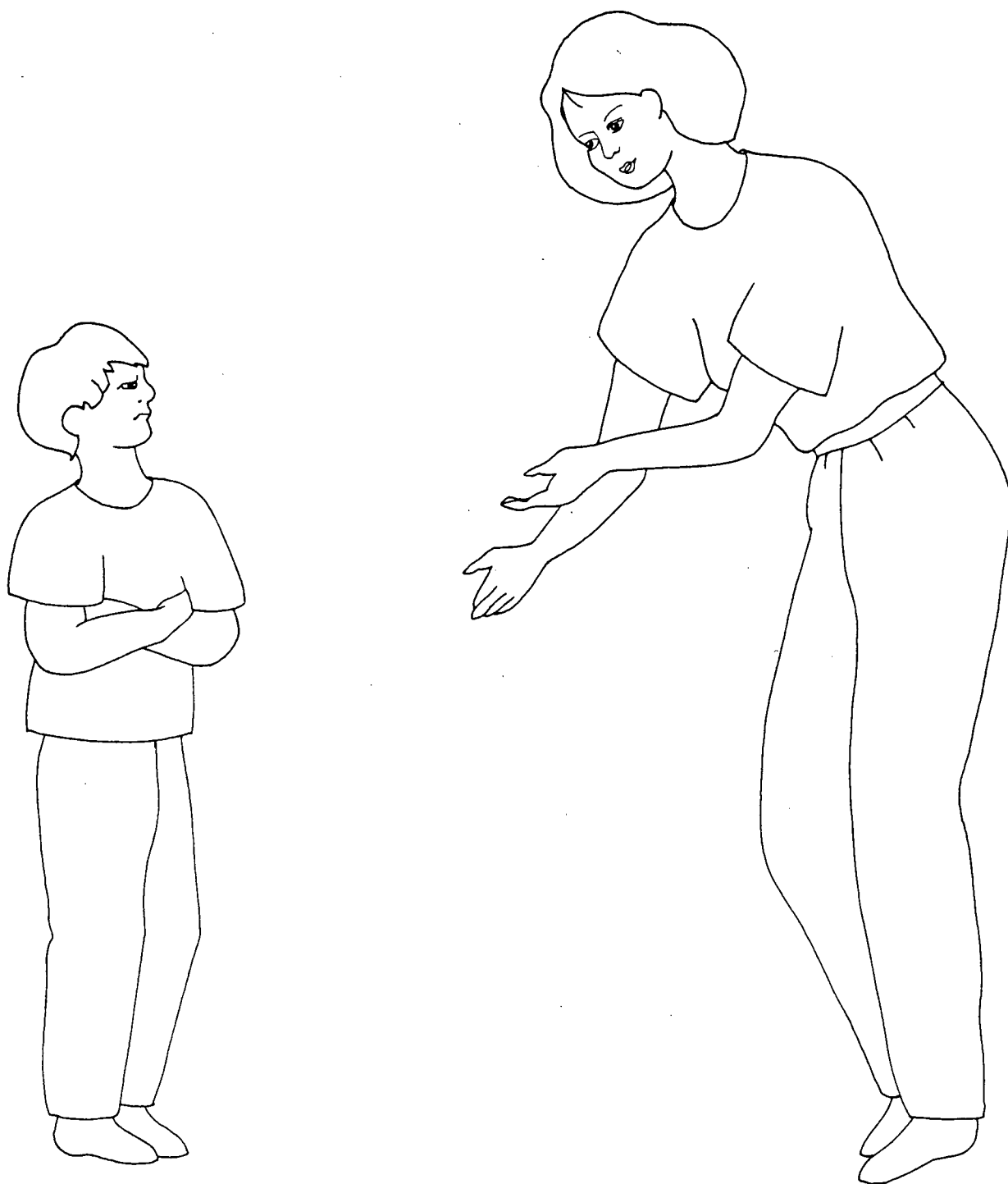
INB

WCC
1966

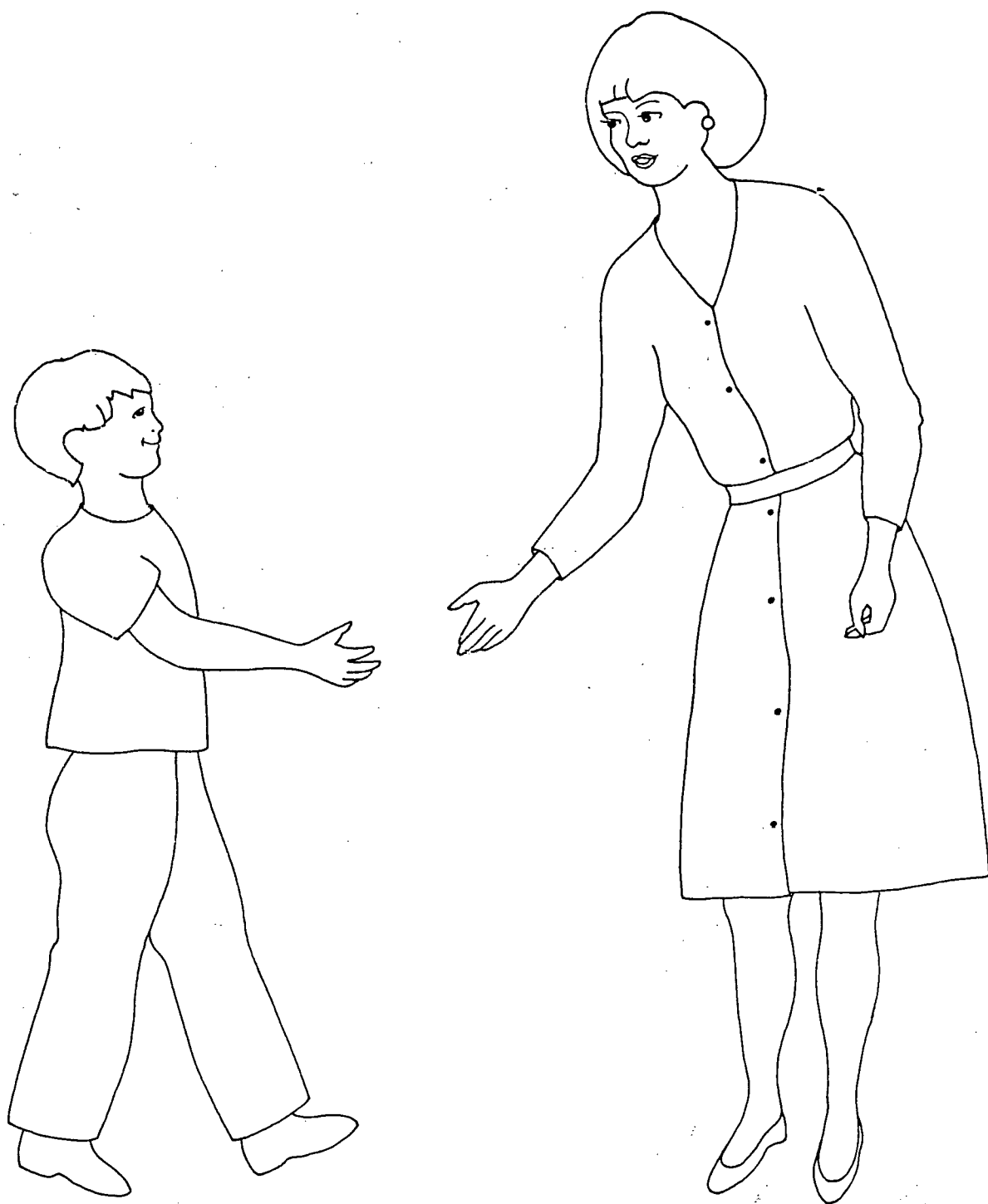


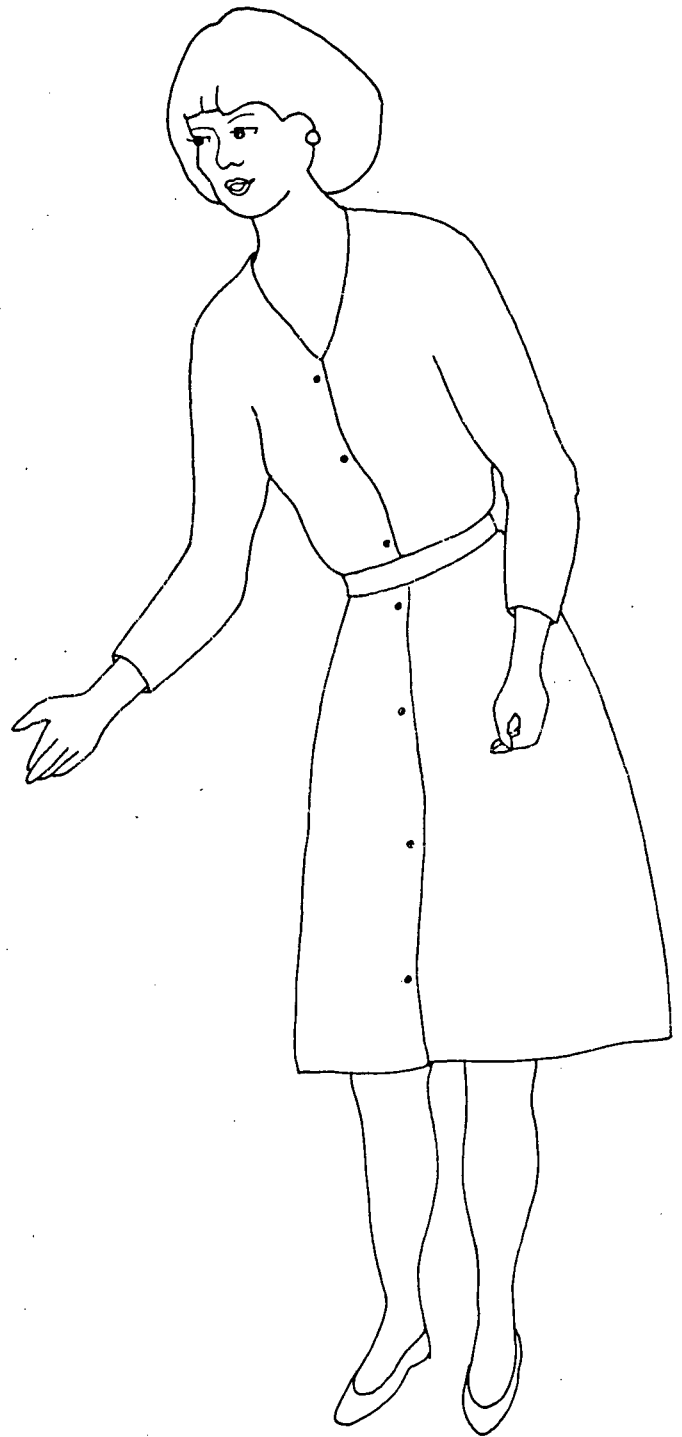
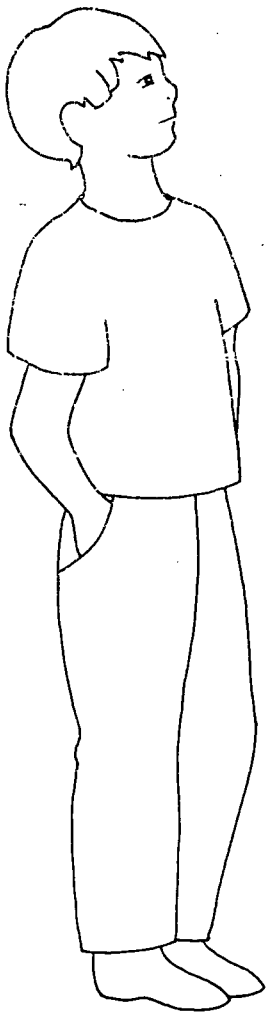


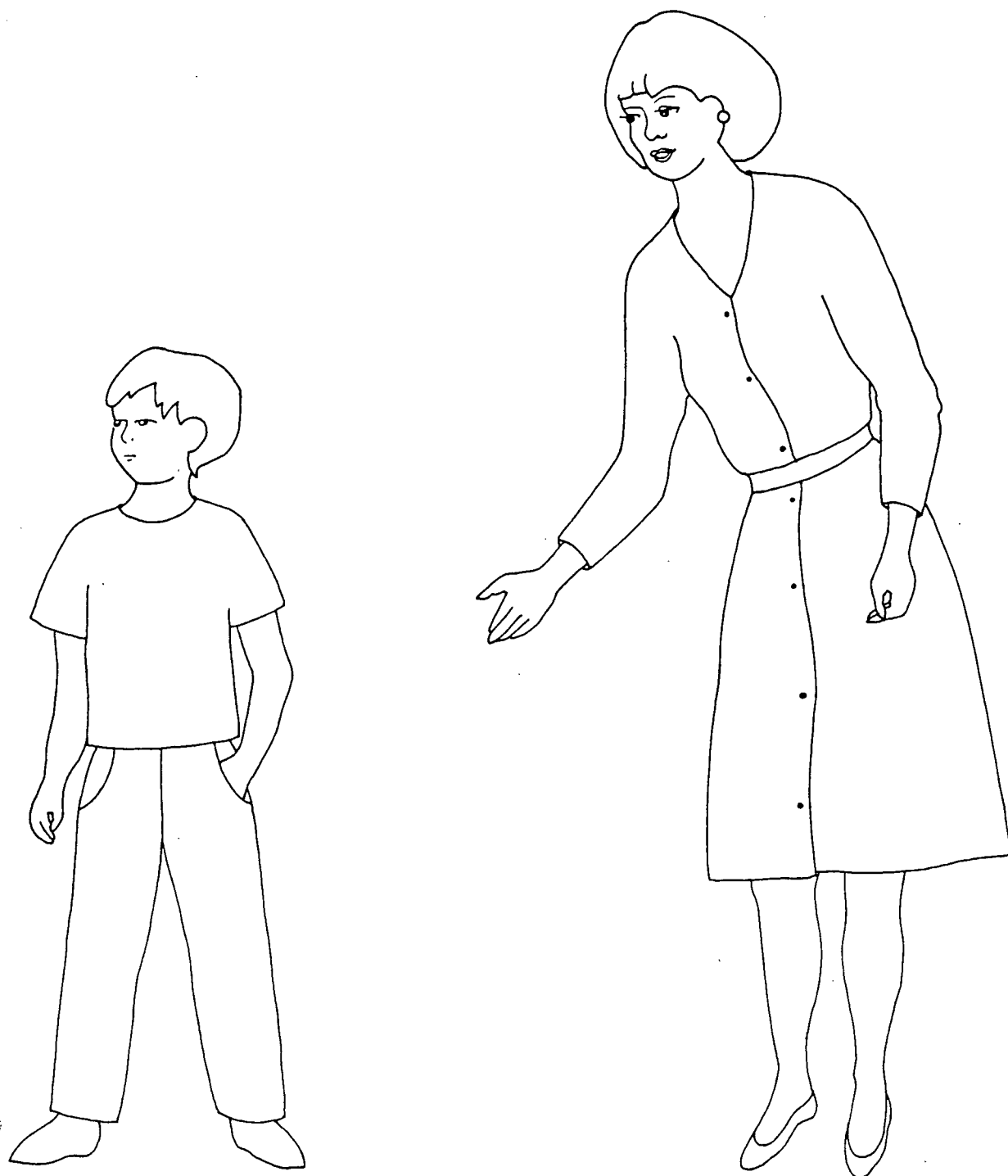


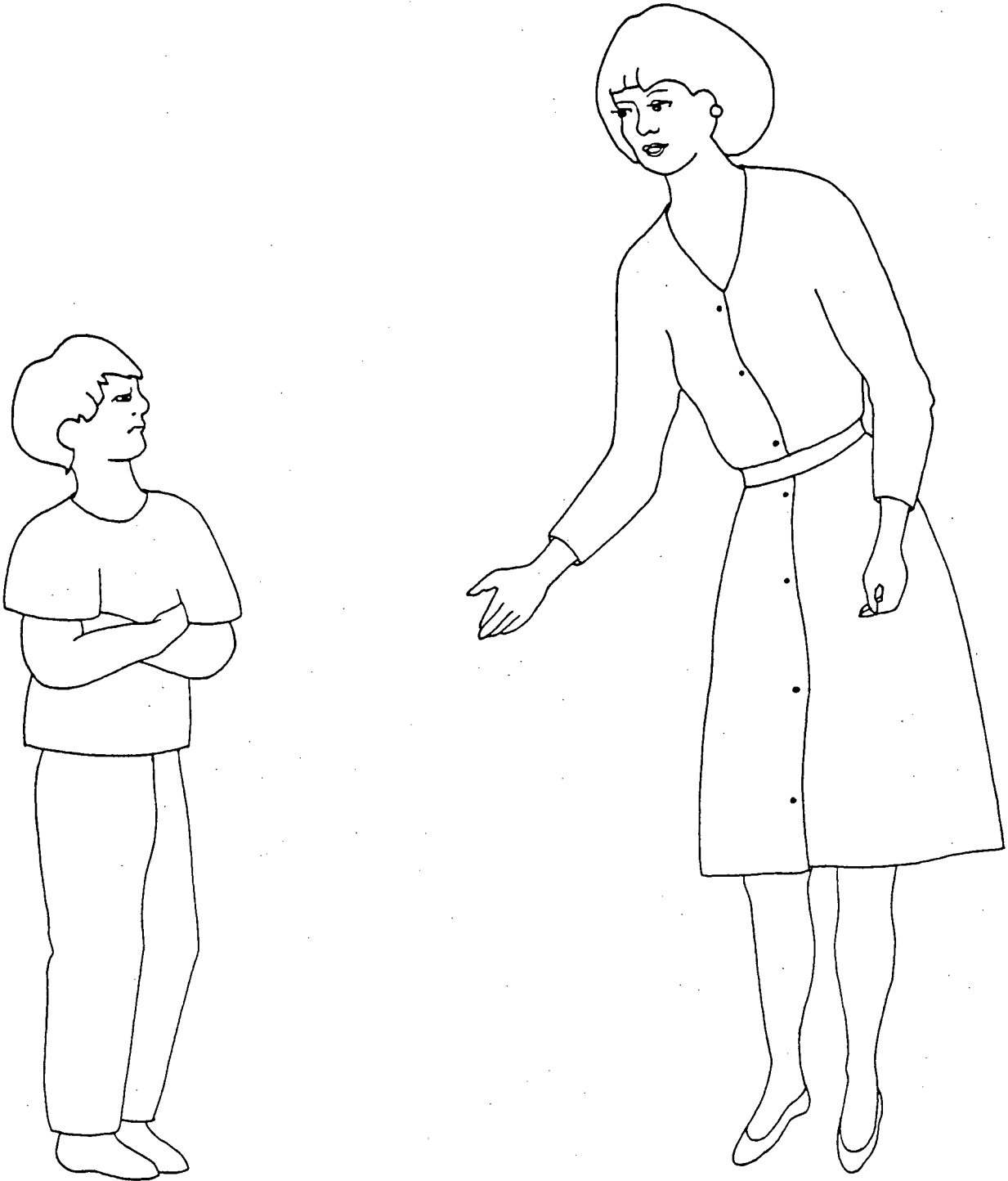


ZNB

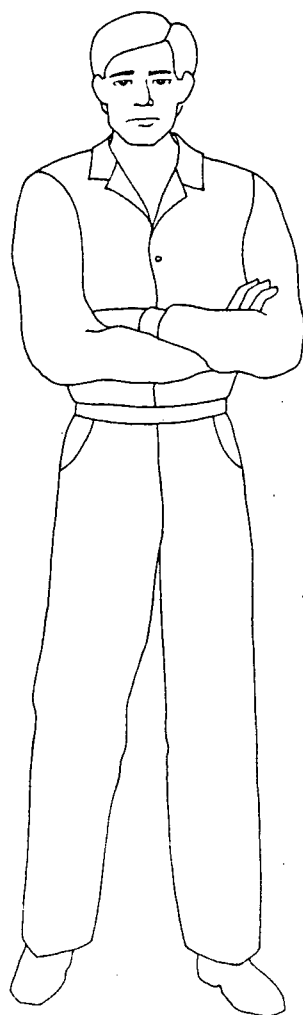
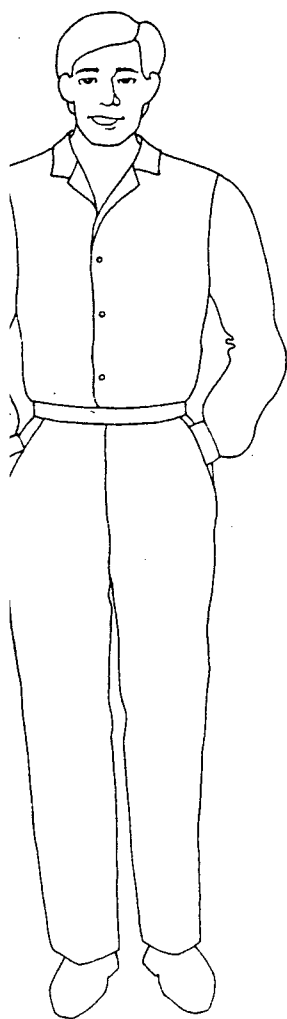


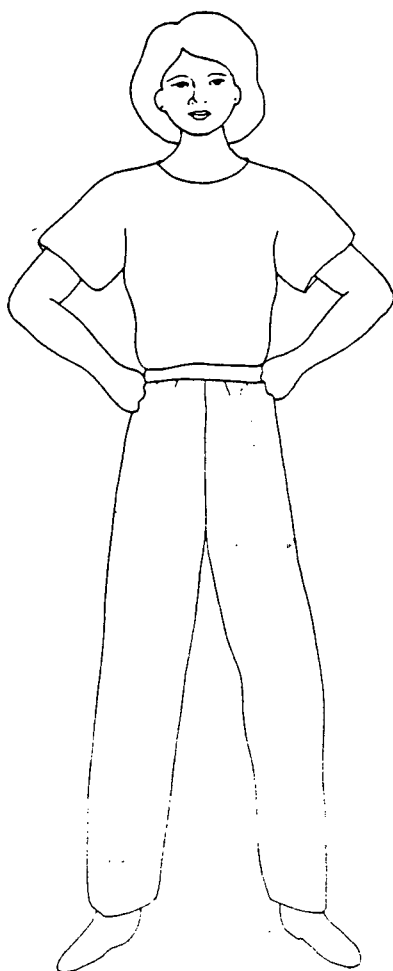
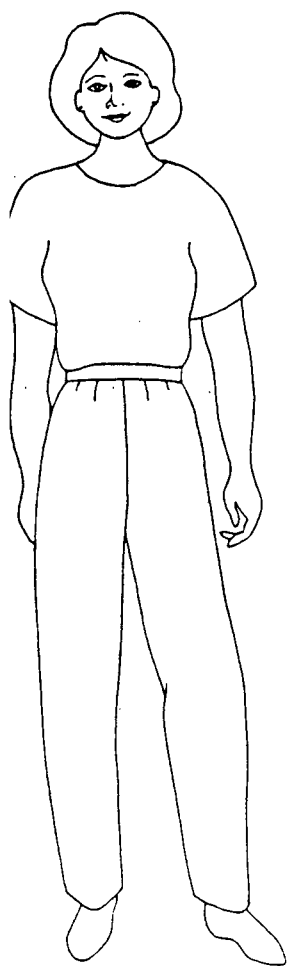


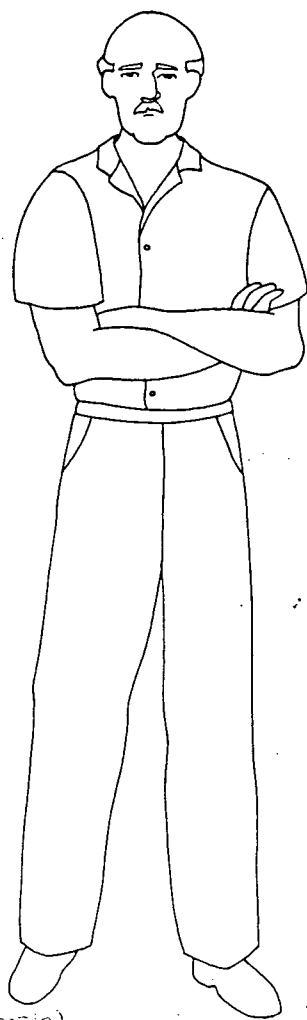
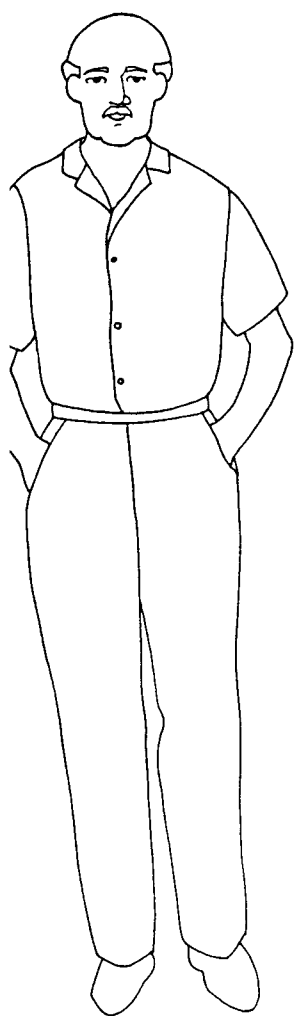




Appendix B: Drawings for
Friendliness/Unfriendliness Inventory



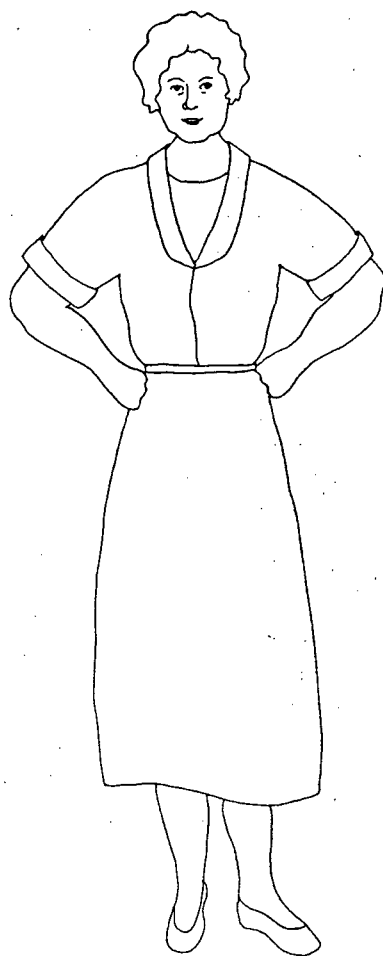
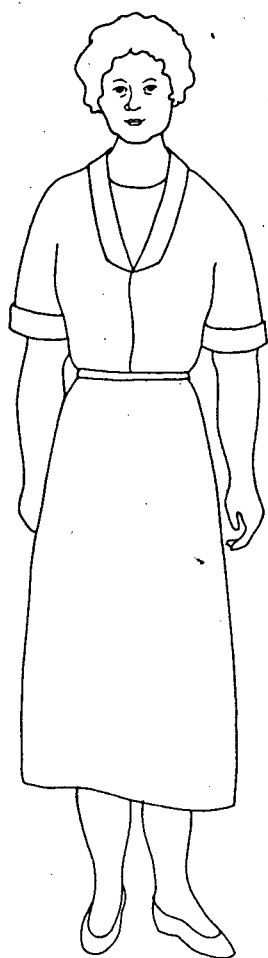


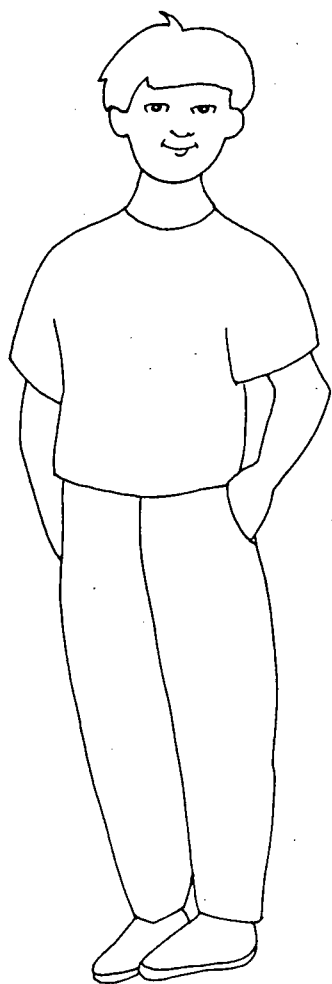


F2 (male)

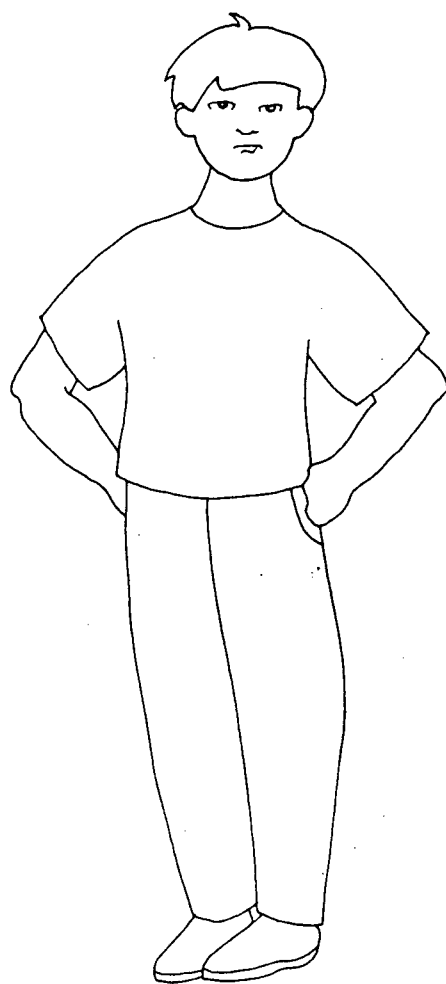


F3 (male)

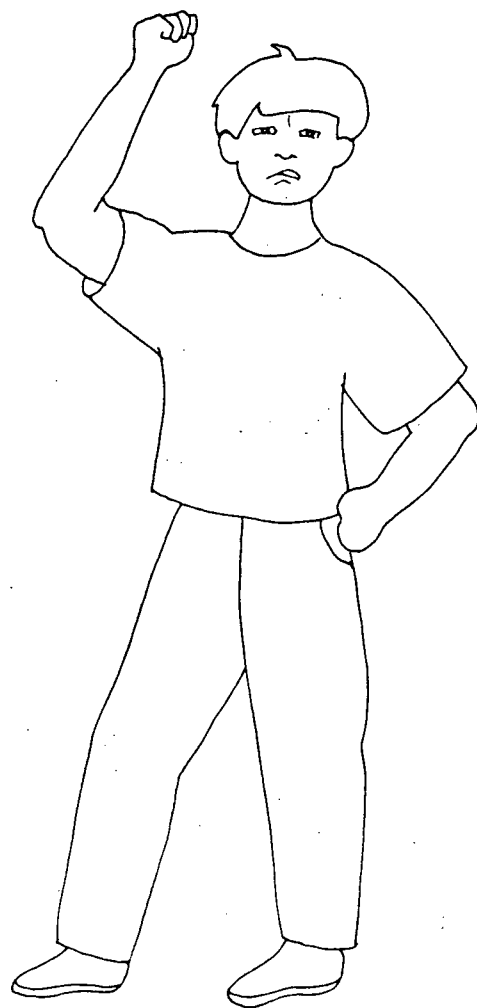




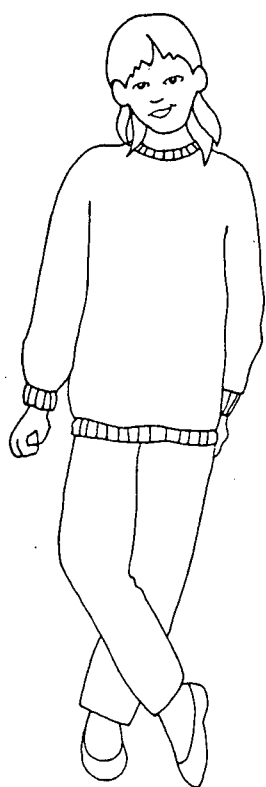
F1 (male)



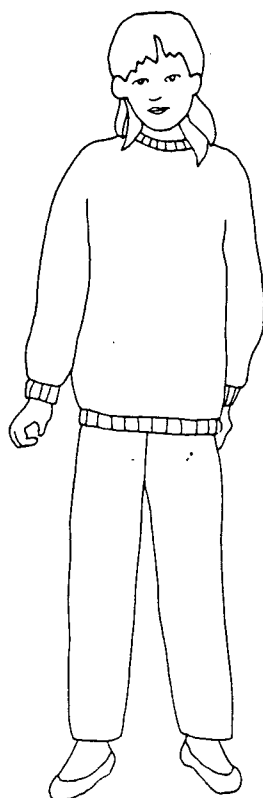
F2 (male)



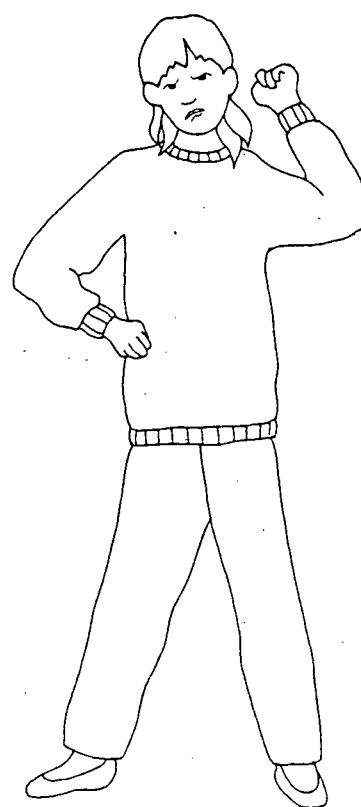
F3 (male)



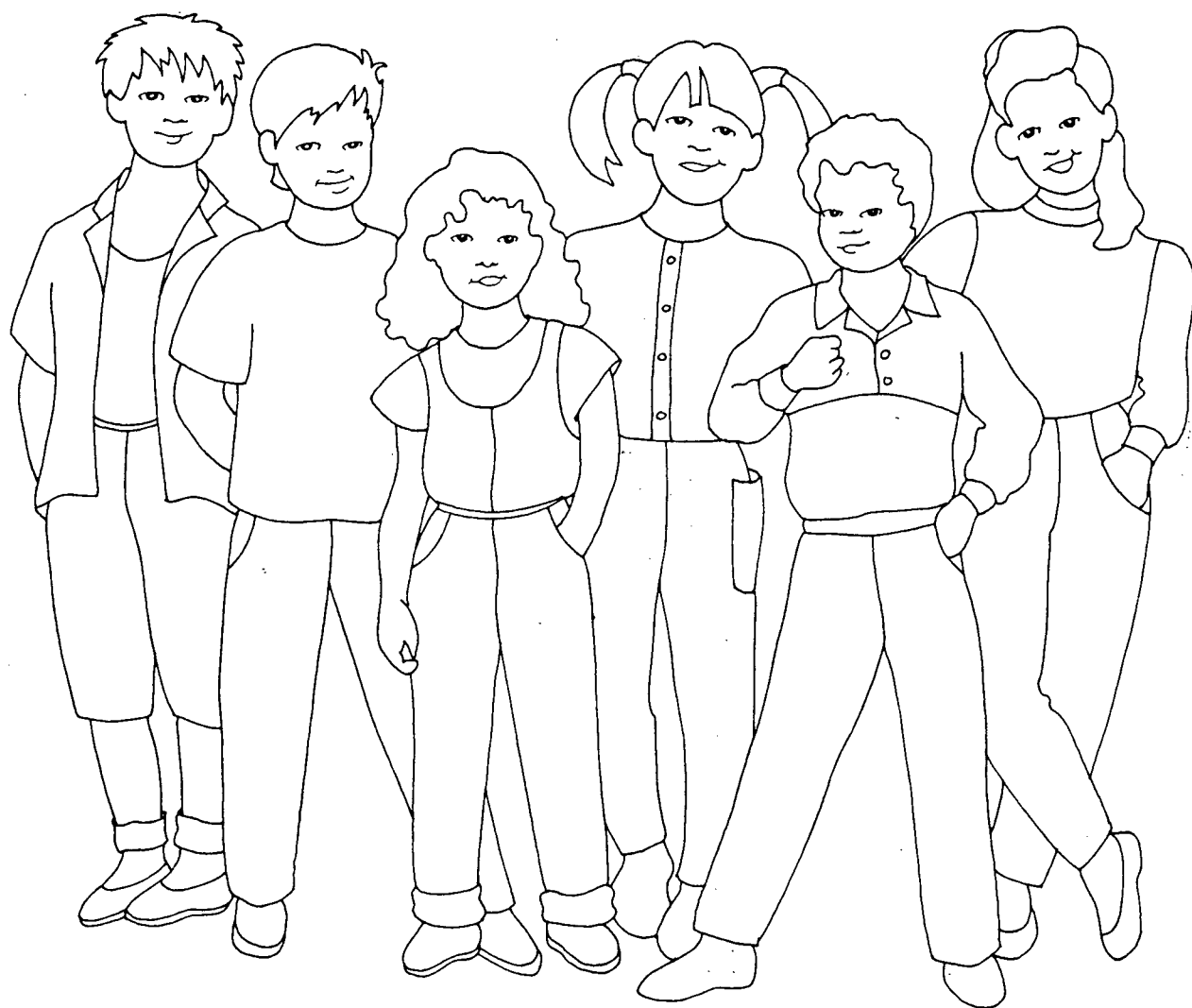
E1



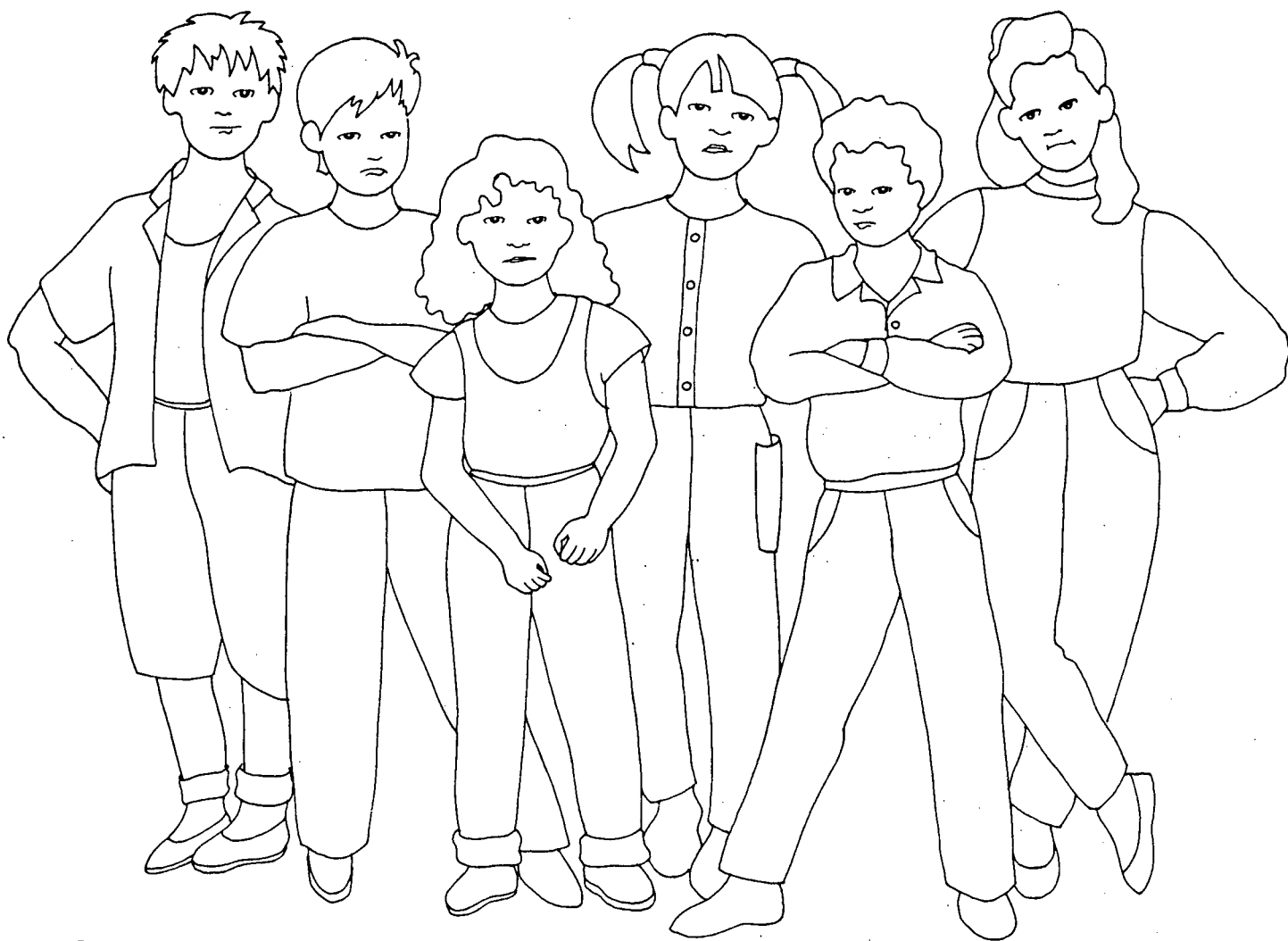
E2

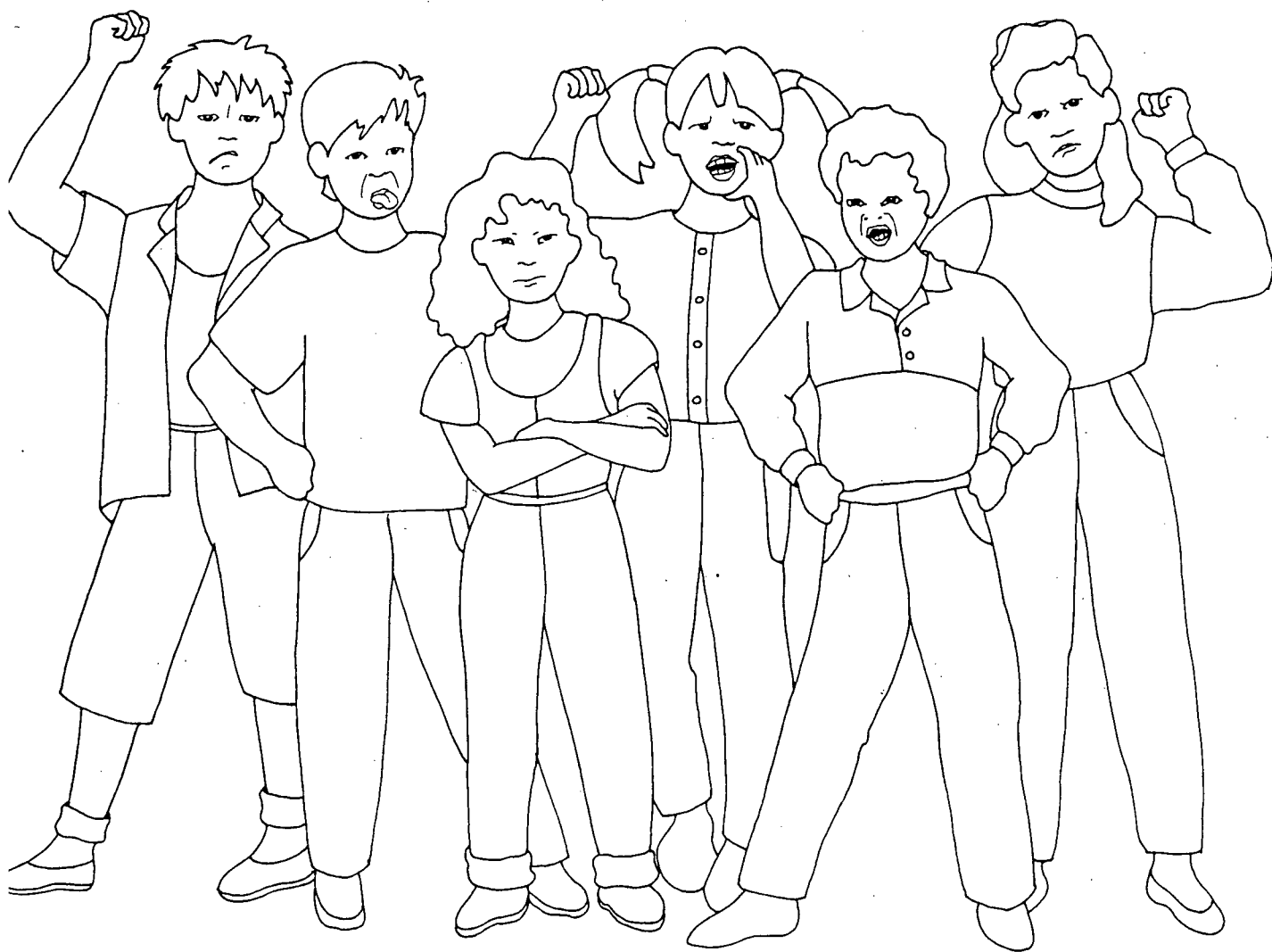


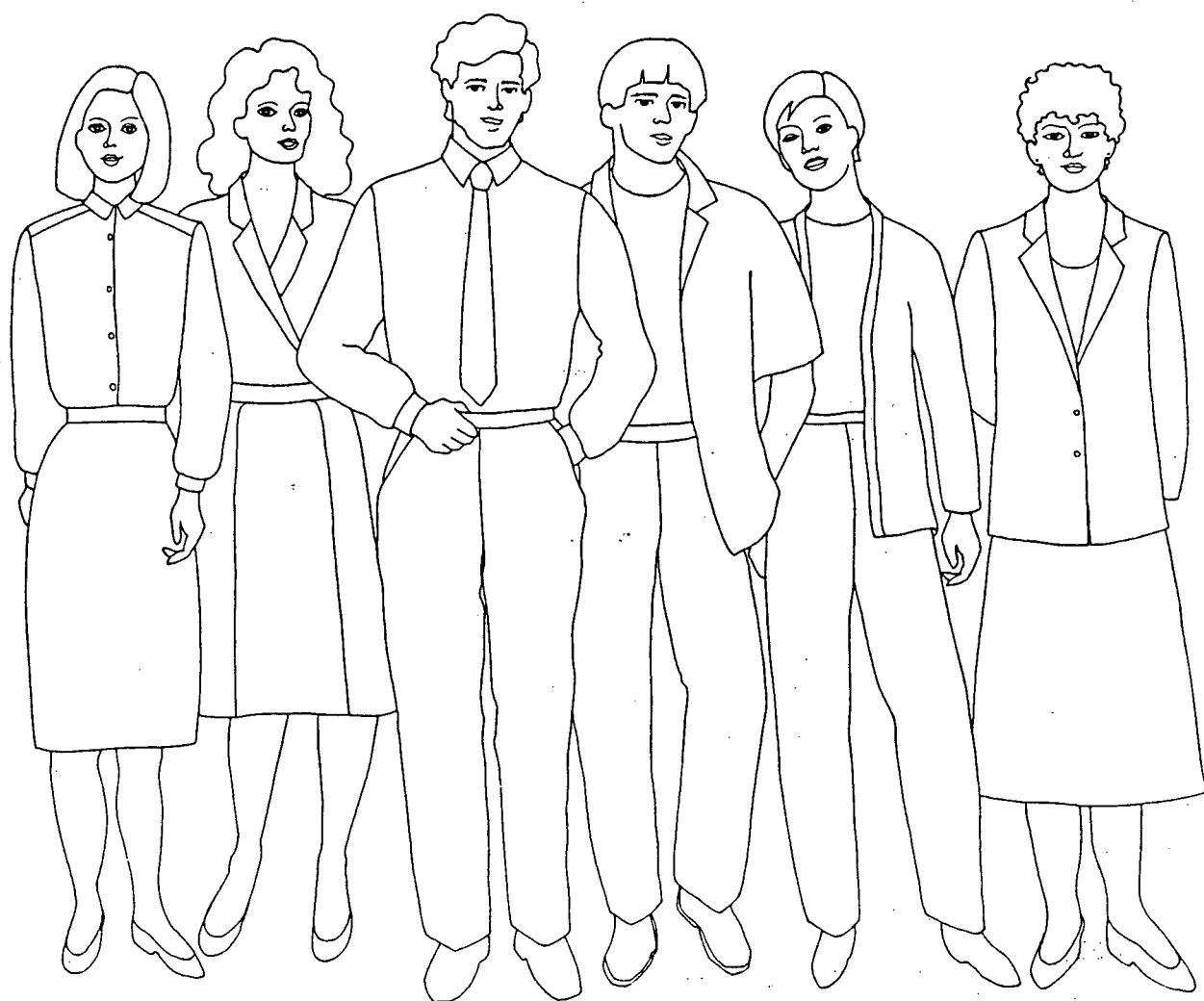
E3



G1

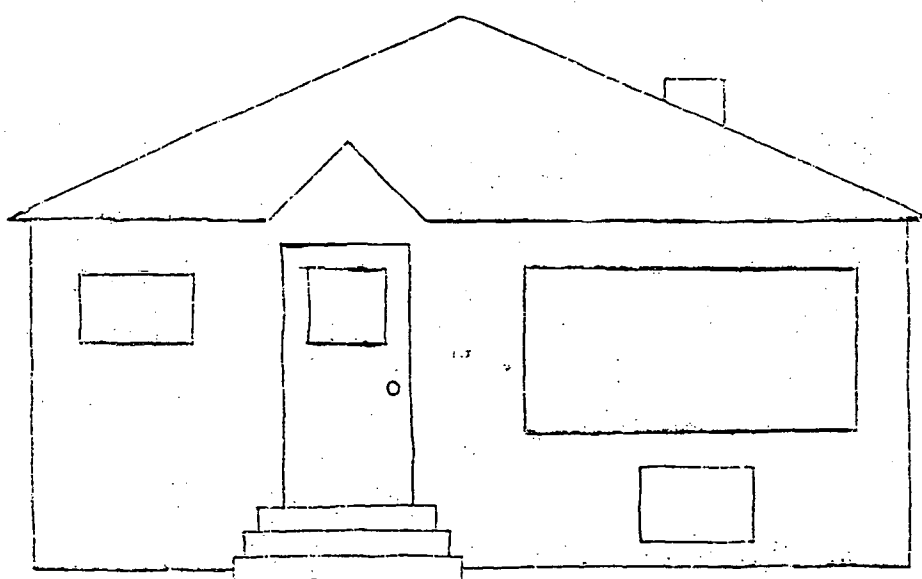




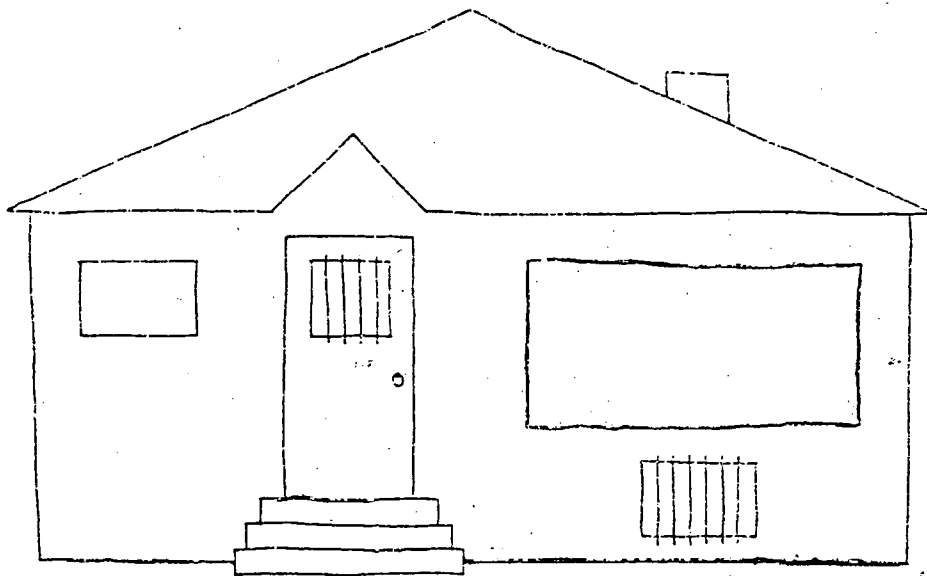


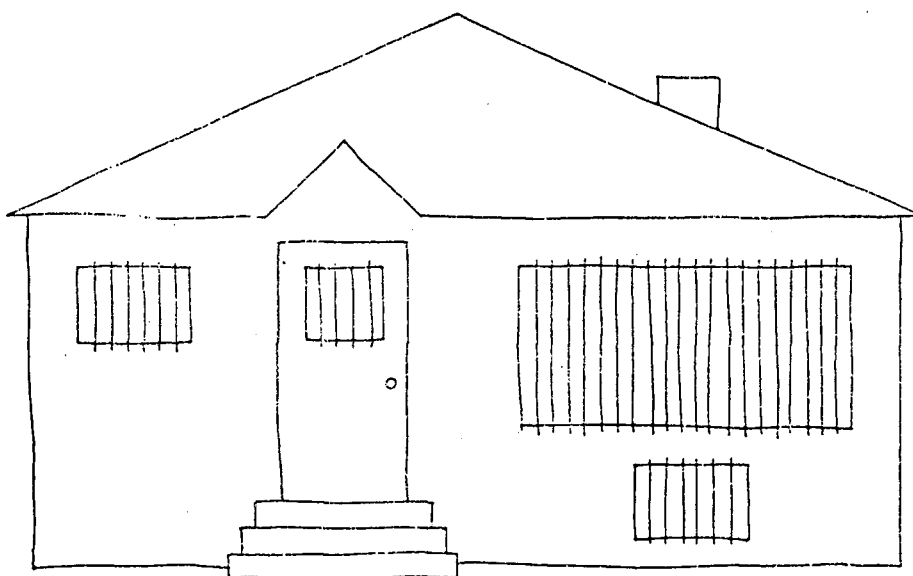




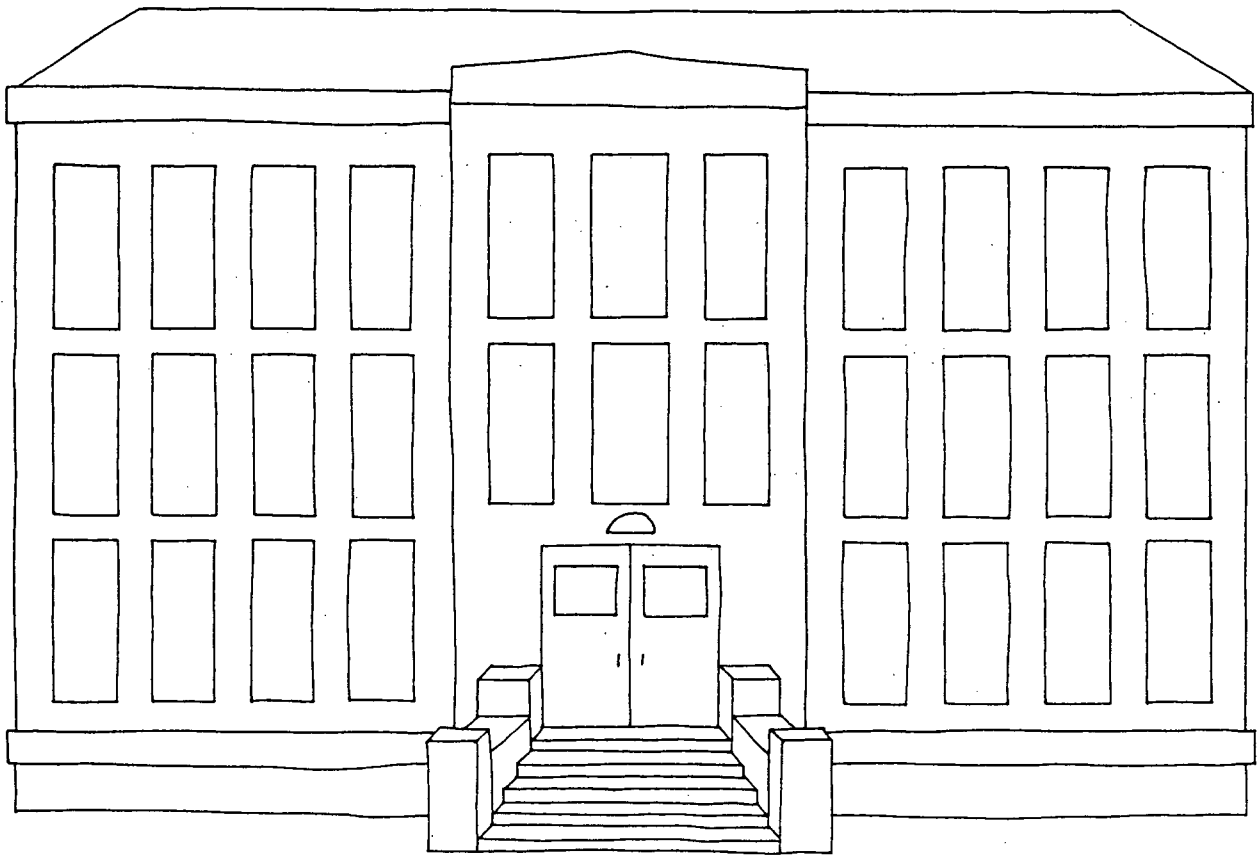


T1

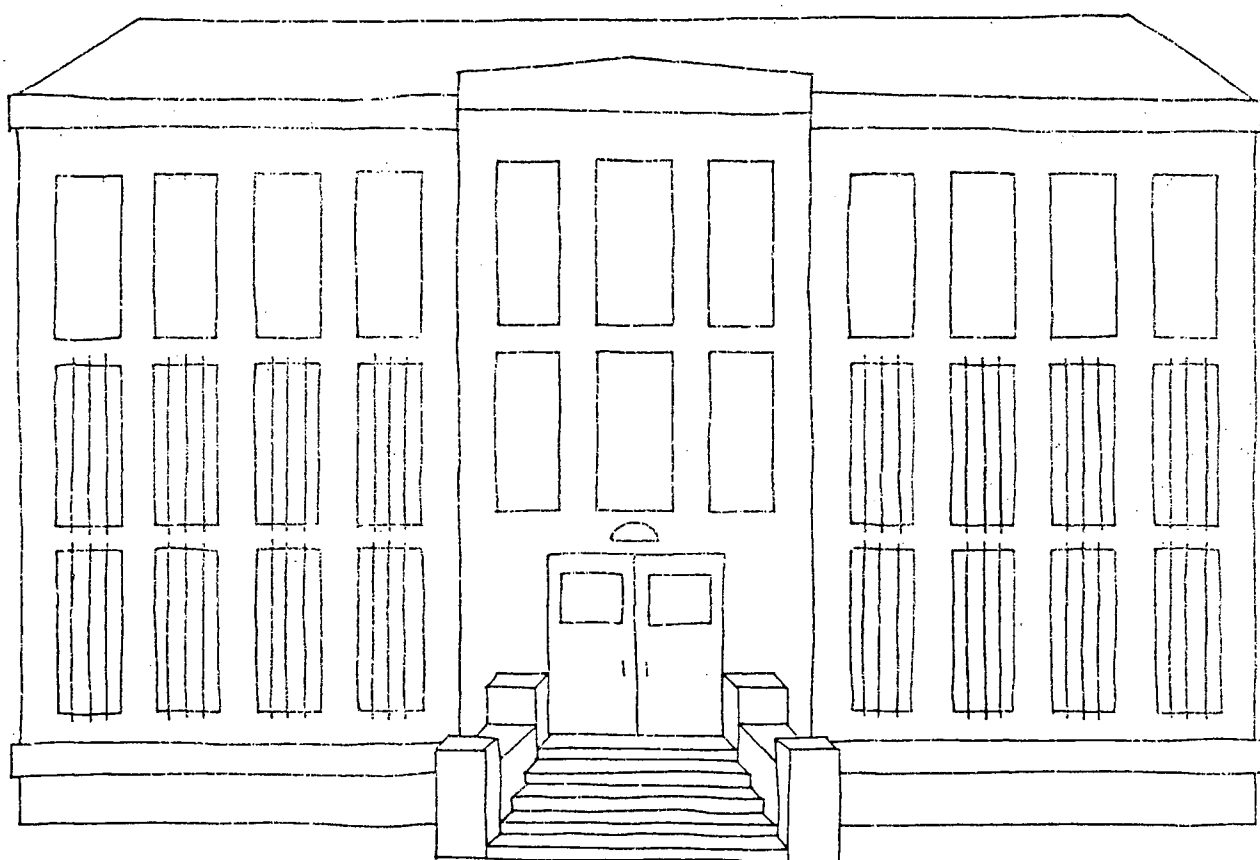


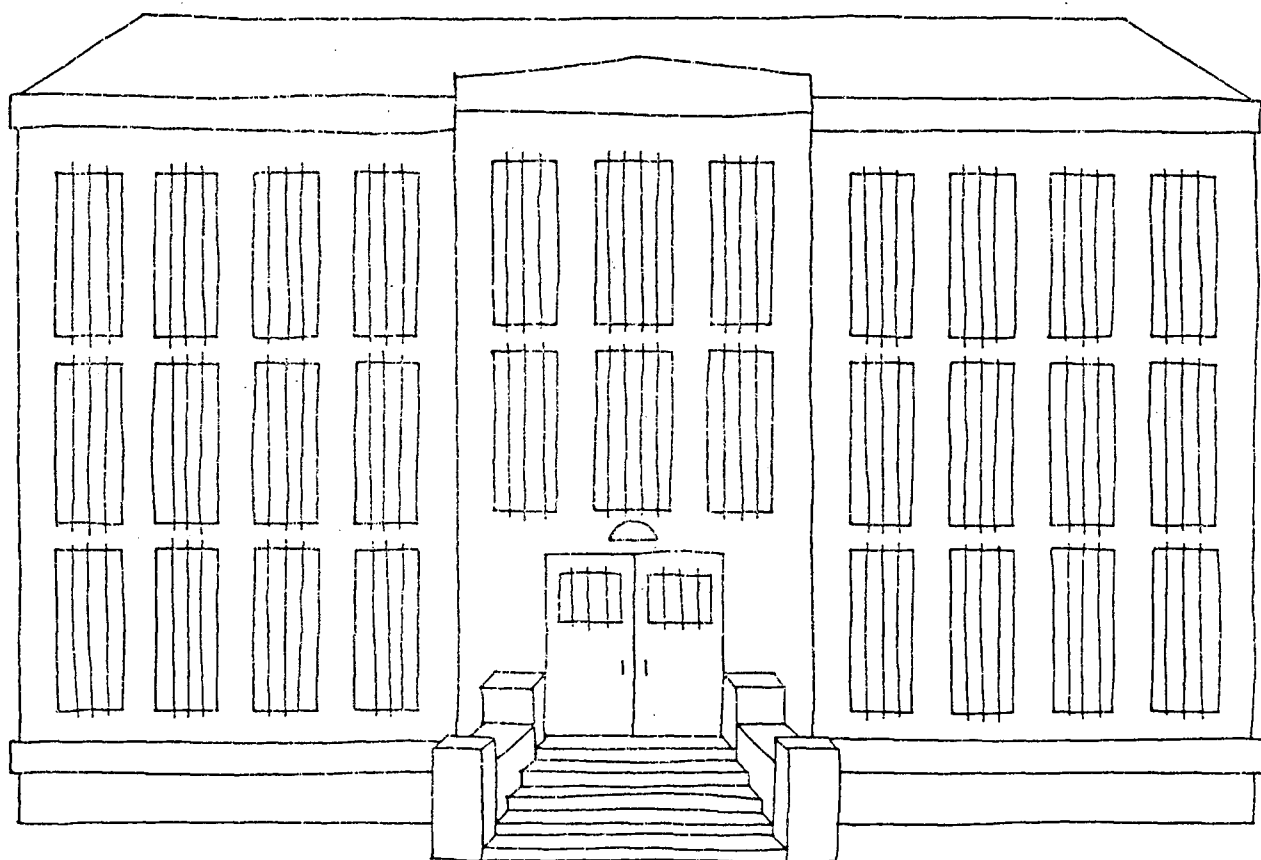


93



H1





43