Young children's understanding of the context-relativity of normative rules in conventional games

Hannes Rakoczy*, Nina Brosche, Felix Warneken and Michael Tomasello
Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

We investigated young children's awareness of the context-relative rule structure of simple games. Two contexts were established in the form of spatial locations. Familiar objects were used in their conventional way at location 1, but acquired specific functions in a rule game at location 2. A third party then performed the conventional act at either of the two locations, constituting a mistake at location 2 (experimental condition), but appropriate at location 1 (control condition). Three-year-olds (but not 2-year-olds) systematically distinguished the two conditions, spontaneously intervening with normative protest against the third party act in the experimental, but not in the control condition. Young children thus understand context-specific rules even when the context marking is non-linguistic. These results are discussed in the broader context of the development of social cognition and cultural learning.

Human infants from around 1 year of age begin to engage in imitative learning from others (e.g. Carpenter, Nagell, & Tomasello, 1998). Many of the acts children learn through imitation are not just individual, idiosyncratic behaviours, but cultural conventional forms of action. And many of these forms of action are rule-governed and normatively structured (e.g. Kalish, 2005): there is a right and wrong way to do them – including linguistic behaviour, conventional usage of cultural artefacts (e.g. tools), and games of all sorts.

While older children approaching school age have revealed some understanding of the conventional and normative aspects of such cultural activities in explicit interview studies (e.g. Kalish, 1998; Smetana, 1981; Turiel, 1983), recent research has just begun to investigate earlier forms of understanding the conventionality and normativity of social practices in the preschool years. In the domain of tool use, for example, Casler and Kelemen (2005) have found evidence that even 2-year-olds not only imitated instrumental actions with novel artefacts, but they also showed functional fixedness to the imitated
usage (were reluctant to use the object for other purposes and other objects for the same purpose), and expected others to use the same object for the same purposes. This plausibly shows that children interpreted the way of treating the object as conventional (in the wide sense of ‘how things are usually used’). On an even stronger readings, these results might be interpreted as showing that children understood the way of handling the tool in normative terms - in the sense of ‘this is the way we (ought to) do it’.

While such a rich reading of the functional fixedness data is not necessarily warranted, another line of research has recently demonstrated young children’s understanding and learning of novel actions as normatively structured in more direct ways: In a set of studies, children’s learning of novel games was investigated (Rakoczy, 2008; Rakoczy, Warneken, & Tomasello, 2008). In one study (Rakoczy et al., 2008, Study 1), young children (age 2 and 3) first saw an experimenter demonstrate a novel simple rule game (called, e.g. ‘daxing’). In the course of this demonstration, the experimenter performed two kinds of acts, one of which was marked as the proper game (‘this is daxing’), while the other one was marked as an accident (‘Whoops!’). Children then subsequently not only learned to play the game imitatively themselves; they also indicated that they understood the demonstrated way to play the game as the normatively correct one: when a third party announced to participate in ‘daxing’ and then performed inappropriate acts, children intervened and protested and criticized her (e.g. by saying ‘No! That’s not how daxing goes! You have to do it like this . . .!’). In a control condition, when the model performed the same kinds of behaviours but these were all neutrally marked (as unspecific acts), children did not jump to any normative conclusions and did not criticize third parties.

In another study (Rakoczy, 2008), children (age 2 and 3) were involved in a simple game of pretence with an experimenter in the course of which neutral objects (e.g. wooden blocks) were assigned fictional identities (e.g. one green block counted as a ‘soap’ to pretend to wash one’s hands with, and several yellow blocks counted as ‘sandwiches’ for pretend eating). When a third party then entered, announced to join the game, and produced acts that were inappropriate in light of the rule of the game (e.g. confused the fictional identities), children again intervened and criticized the wrongdoer (e.g. ‘No! That’s not our soap!’).

Games, both simple rule games and games of pretence are particularly interesting activities for the present theoretical purposes because they involve the assignment of so-called ‘status functions’ to objects (Searle, 1995). Status functions are strongly conventional functions that objects have merely because they are collectively ascribed (in contrast to causal usage functions of tools, for example, that – though conventional to some degree – are essentially anchored in the intrinsic causal properties of the objects). Status functions underlie all institutional reality, and ‘X counts as a Y in context C’ is the logical form of such status assignment (Searle, 1969, 1995). Among standard examples are money (‘This piece of paper counts as money in our currency area’) or political affairs (‘This person counts as the president in this country for the next 4 years’). And games are a paradigm as well – this piece of wood counts as a queen in chess or ‘moving this piece in such ways counts as attacking in chess’.

The normative dimension of status functions is that the object (X) ought to be treated appropriately (as a Y) in the context of the game (C). What the formula ‘X counts as Y in C’ also makes clear is that the normativity inherent in practices with status assignment is essentially a context-relative one: in context C, X ought to be treated as a Y, but no such consequence follows outside of C (e.g. touching a ball with one’s hand is a rule violation during a game of soccer, but not after the game is over).
In the studies cited above young children appreciate the basic normative structure of simple rule games and games of pretence - as indicated in their enforcement of these norms towards third parties. But to what degree do they appreciate the context-relativity involved in this? We know from several lines of research that preschoolers from around 3 years are capable of following context-specific rules in their actions (e.g. in the areas of pretend play (Wyman, Rakoczy, & Tomasello, in press) or card sorting (Brooks, Hanauer, Padowska, & Rosman, 2003)), or at least of stating such rules even if they cannot yet act on them competently (Zelazo, Frye, & Rapus, 1996). But following or stating a rule is not yet convincing evidence of understanding it as a rule, of understanding its normative status and structure. For such an awareness of the context-relative normativity of rules, more direct indicators such as intervention in response to third party mistakes are crucial.

One recent study (Rakoczy et al., 2008, Study 2) might supply some potential hints towards such an awareness in young children: the children were first involved in a simple rule game (again, with novel names, e.g. 'Daxing') with an experimenter, and then a third party (a puppet) entered the scene and performed an action that was inappropriate in the context of the game. In the experimental condition, the puppet announced that she was going to join in the game and 'dax' as well, and was then criticized by the children. In the control condition, in contrast, she announced that she did not want to join in the game, but rather do something else, and the children then refrained from intervening. The children in this study might have been aware of the context-relative normative structure of the game: the puppet puts herself in the context of the game through her announcement in the experimental condition, but withdraws from the context through her announcement in the control condition. Alternatively, however, children might have just tracked the puppet's words in relations to her deeds (she said she is daxing but she is doing something else), simply intervening in the case of mismatches.

The main aim of the present study, therefore, was to test for young children's appreciation of the context-relative status of normative rules more systematically and stringently. To this end, non-verbal ways of context-marking were used, namely spatial ones: there were two locations, at one of which a given act constituted a mistake, while the very same act was appropriate at the other location. Using similar kinds of rule games as the previous studies mentioned above, an experimenter (E1) first showed children familiar objects (e.g. a sponge) with familiar usages (e.g. cleaning) at one location, a blanket on the floor, where it was then used in its usual way. Then E1 and the child moved with the object to another location, the 'game table' where the object acquired a specific status function (e.g. was used as a dice) in the context of a specific game that E1 and the child played for a while. E1 explained to the child that the object was to be used in the game only at the 'game table'. After E1 and the child finished the game, when E1, the child and the object were at a neutral spatial location, the puppet entered and then performed the usual act with the object (e.g. cleaned). The crucial variation was now which spatial context the puppet put herself in: in the experimental condition she went to the spatial game context (the table) and performed the usual act with the object which was a mistake in that context. In the control condition, in contrast, the puppet went to the other location (the blanket on the floor) where the usual act was perfectly appropriate. Thus, if children actually grasp the context-relative normativity of the game (and do not just track matches or mis-matches between words and deeds), they should intervene and criticize the puppet in the experimental but not in the control condition.
Methods

Participants
Twenty-four young 3-year-olds (34–38 months, mean age = 36 months; 14 girls) and 24 young 2-year-olds (24–29 months, mean age = 27 months; 12 girls) were included in the final sample. Seven additional children were tested but had to be excluded due to technical or experimental error (N = 4) or because they were uncooperative (N = 3). The children were recruited in urban daycare centres, came from mixed socio-economic backgrounds and were native German speakers.

Design
The basic design was the same for both age groups: in a within subject design, each child received four trials: two control and two experimental tasks in alternating order. Across children the order of experimental and control tasks was counterbalanced, so that half of the sample began with an experimental trial while the other started up with a control trial. Each game could be administered in the experimental or the control condition, and across children the assignment of games to conditions was counterbalanced. Before the four main tasks, children were given three warm up tasks in fixed order.

The only difference between the age groups was in the games: while the ones used for the 3-year-olds were proper arbitrarily structured rule games, such activities had proved to be too complex for 2-year-olds (in pilot studies) so that they got simplified versions of the 3-year-olds’ games (details see below).

Material and procedure
All testing was done by two experimenters in a separate, quiet room of the respective kindergarten. A session lasted approximately 40 minutes. There was a general warm-up in which the first E1 played with the child until she felt comfortable, followed by a specific warm-up in which the puppet that E2 played was introduced. E2 brought out a hand puppet called ‘Max’ which she animated and introduced to the child. E1, Max and the child then played with a ball and other toys to make the child feel comfortable with the puppet. Then E1, the child and the puppet took turns in performing simple instrumental actions (e.g. drawing) and the puppet committed some instrumental mistakes (e.g. took a malfunctioning pen). The rationale for this was to give children, particularly shy ones, time to familiarize themselves with situations where mistakes happen and they can intervene.

Game tasks
Structure of the game tasks for the 3-year-olds
There were four trials all of which had the following common structure: there were familiar objects (e.g. a sponge) that were used in their usual way at one place (on a blanket on the floor = spatial context 1), but which acquired a specific function (e.g. the sponge was used as a dice) in a specific rule game in another context (at the ‘game table’ = spatial context 2; for detail of all games, see Appendix A). E1 introduced this structure to the child and explained that at the ‘game table’, the specific games were to be played. In the test phase, the puppet entered the scene, picked up the target objects, and then went on to perform the usual act with the object (e.g. cleaned with the
sponge). The crucial variation between conditions was where the puppet did so: in the experimental condition, the puppet performed this act at the table - where it constituted a mistake (because in that context the game was to be played). In the control condition, in contrast, the puppet performed the act in the other spatial context (on the floor) where it was not inappropriate.

In each trial, E1 introduced a tray upon which there was - among other things the familiar object (e.g. the sponge) while sitting on the floor (spatial context 1) with the child and the puppet, and the three of them used the object in its usual way (e.g. to clean). Then E1, the puppet and the child took the tray with them and moved up to the table (spatial context 2), introduced as ‘the game table – here we can play special games’. E1 explained to the puppet and the child that at the ‘game table’ one could play a special game with the object, and then introduced a simple rule game involving the object, labelled with a novel verb. For example, in ‘baffing ’ (the game played with the sponge) a player is supposed to first throw the sponge like a dice, and depending on which of its two differently coloured sides was up, to then perform step 2 which involved the other objects on the tray (e.g. put a pearl on a string). After E1 had explained the rules of the game, the puppet left the scene, and E1 and the child played the game for a while. E1 then proposed to do the familiar action with the object again, and pointed out that they were at the ‘game table’, and that in order to perform the usual act they would have to switch contexts (i.e. go to the blanket on the floor). E1 and the child then took the tray with them and went back to the floor where they performed the usual act (e.g. cleaned). Then E1 put all the objects on the tray and put the tray in a neutral location (on a chair) between the floor and the table, whereupon the puppet re-entered and the test phase began, consisting of two subphases: (1) Neutral pre-phase: the puppet announces that it was his turn now, grabs the tray with the objects and goes to one of the two locations (E1 and the child follow). In this phase, it is not clear yet what is going to happen, whether there will be a mistake or not. (2) Normative target phase: the puppet performs the usual act twice (e.g. clean with the sponge). During that time, E1 is present but visibly concentrated on something else (reading). The rationale for this was to rule out the possibility that children would rely on E1 in enforcing normative rules, or even reason as follows: ‘She (E1) does not object to this, so it must be according to the rules after all . . .'.

Structure of the game tasks for the 2-year-olds
The general design and structure of the tasks was analogous for the 2-year-olds, with the only exception that the games were much simpler, only involving one action with the familiar object rather than the 2-step-structure of the 3-year-olds. For example, in the 2-year-olds’ version of ‘baffing’, the sponge was just used in combination with a shallow cardboard box, attached to it an oblique transparent plastic plane with a small hole in it, and the action was to squeeze the sponge through the hole so that it landed on the cardboard (for details, see Appendix A).

Observational and coding procedure
All sessions were videotaped and coded by a single observer (O). A second independent O (blind to the hypotheses) coded a random sample of 20% of all the sessions for inter-rater reliability.

Children’s responses to the puppet’s act in the test phases were coded in the following way: for each of the subphases, all relevant responses and utterances of the
child were carefully described and given one of the following codes. (1) **Normative protest**: this code was given when the child clearly intervened using normative vocabulary. This could be either in the negative ('No! It does not go like this' or 'No, you are not allowed to clean up here') or in the positive ('You have to dice' or 'On the blanket we are doing this'). Active teaching also fell into this category ('I’ll show you how to do it, look it goes like this'), and reports to E1 about the puppet’s mistakes ('He cannot do it' or 'Max did not play the game'). (2) **Imperative protest**: this code was given when the child expressed an imperative to the puppet without using normative vocabulary, either in the positive ('Put it in here!' or 'On the blanket clean up') or in the negative ('No, not on the table' or 'No kneading at the table'). In this category also fell questions by the child such as 'And the pearl?' or 'Why does he not throw the dice?'. (3) **Hints of protest**: this code was assigned when the child responded in a way reminiscent of protest, but not clearly enough for either of the above categories. In the category fell pointing or gesturing towards the game equipment, physically preventing the puppet’s action, doing part of the game act (throwing the sponge as a dice), frowning looks towards E1 etc.

As the focus was on the most sophisticated form of protest children produced, each subphase received as code the highest code which occurred in this phase. Reliability was computed over the codes for the subphases and was very good: weighted $\kappa = .89$. For each task then two overall codes were given: first, the code for the neutral pre-phase; and second, the normative target phase received as overall code the highest code that appeared in its subphases. Over the two tasks in each condition, and over the two phases (neutral pre-phase and normative target phase), for each child sum scores (0–2) for normative protest, imperative protest and hints of protest were computed which were the basis for statistical analyses.

**Results**

The mean sum scores over the two tasks per condition for the different response categories in the neutral pre-phase and in the normative target phase are depicted in Figure 1.

**Normative target phase**

First, on a strict analysis taking only normative protest into account, a paired sample $t$ test on the mean sum scores of protest in the normative target phase revealed that the 3-year-olds performed significantly more protest in the experimental ($M = 0.67$) than in the control condition ($M = 0.13$), $t(23) = 3.41$, $p < .01$. On an individual level, of the 24 children, 12 protested at least once in the experimental condition, and only 3 did so in the control condition (McNemar test, $p < .05$; see Table 1). There was no such effect, however, for the 2-year-olds: $t(23) = 1.45$, $p > .16$ (on an individual level, there were only two children who showed protest, and both did so only in the control condition).

Second, on a more liberal analysis on the mean sum scores (0–2) of tasks per condition in which the children produced normative protest or imperative protest,1 analogous results were found: 3-year-olds protested significantly more in

---

1 The category hints of protest was not entered into the statistical analyses as it was not strong and convincing enough an indicator of protest proper.
the experimental ($M = 0.96$) than in the control condition ($M = 0.13$), $t(23) = 5.00$, $p < .01$. On an individual level, of the 24 children, 16 showed such forms of protest at least once in the experimental condition, and only 3 did so in the control condition (McNemar test, $p < .01$; see Table 1). Again, for the 2-year-olds there was no significant difference between conditions, $t(23) = 0.49$, $p > .62$ (on an individual level, five children protested at least once in the experimental condition, and six did so in the control condition).

**Table 1.** Contingency regarding number of children protesting at least once in both conditions

<table>
<thead>
<tr>
<th></th>
<th>2-year-olds</th>
<th></th>
<th>3-year-olds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Protested at least once in control condition?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Liberal measure (normative or imperative protest)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protested at least once in experimental condition?</td>
<td>Yes</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Strict measure (normative protest only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protested at least once in experimental condition?</td>
<td>Yes</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>22</td>
</tr>
</tbody>
</table>

**Neutral phase**

Analogous analyses on the mean sum scores of normative protest and imperative protest in the neutral phase yielded no significant difference between experimental ($M = 0.17$) and control condition ($M = 0.04$) for the 3-year-olds, $t(23) = 1.37$, $p > .10$ (the 2-year-olds did not produce any such behaviour in the neutral phase at all).
Discussion

Previous research has documented that young children from age 2 to 3 have some awareness of the normative structure of simple rule games, but left open the question whether children understand the context-relativity of such normative structures. The present study was designed to test for this kind of understanding systematically: children were involved in game activities in the course of which two different contexts were set up spatially. Then a third party (the puppet) went to either of the two locations and performed the very same act – the usual act with the object in question, appropriate at location 1 (on the floor) but a mistake at location 2 (the ‘game table’).

The 3-year-olds quite clearly distinguished between the two conditions, responding appropriately in each case: they spontaneously intervened with protest and critique in the experimental condition where the act constituted a mistake at the location in question (at the ‘game table’) but not in the control condition (when the act was not inappropriate to the location). Both this pattern and the absolute level of intervention (normative or imperative protest was shown by two-thirds of the children and in around half of the experimental trials) are quite comparable to previous findings on spontaneous normative intervention in 3-year-olds (Rakoczy, 2008; Rakoczy et al., 2008).

True, it might be objected that children this age were far from ceiling in their spontaneous intervention behaviour: one third of children never intervened, and in half of the experimental trials there was no such intervention. In response to this it should be noted, however, that the measure used here (and in previous studies) – spontaneous intervention behaviour – is at the same time both a very stringent and a very taxing measure. First, it is far from being a question or a forced choice measure in the sense that the absence of spontaneous intervention is not incorrect (children might notice the puppet’s mistake, but not consider intervention worth the effort due to various reasons), which makes the interpretation of negative findings very difficult. Second, and relatedly, the measure is quite demanding in the sense that it requires the child to actively interfere with someone else – something that might be difficult in particular for children very shy or polite. Against the background of these considerations, the pattern of responses (significantly more intervention in experimental compared to control condition) and the absolute levels (intervention by two-thirds of the children in half of the experimental trials) seem to well justify the conclusion that 3-year-olds are truly sensitive to the context-relative normativity in simple games: one and the same act can be perfectly appropriate in one context but can constitute a mistake in a different context.

The 2-year-olds in the present study, in contrast, failed to show such a pattern of selective and systematic intervention (they did not intervene much at all) – in contrast also to previous studies where 2-year-olds showed the same pattern of responses as the 3-year-olds, but on a lower and less explicit level (Rakoczy, 2008; Rakoczy et al., 2008). There might be several potential explanations for this. First of all, the task structure of the present study was quite complex regarding demands on executive function and memory, for example: in terms of memory demands, children had to switch back and forth between the two locations and track the two corresponding contexts and activities, keeping simultaneously in mind what to do where etc. In terms of executive demands, intervention in the experimental condition required critique of the usual act

---

2 Future research is needed to address the question how much variance in children’s spontaneous intervention can be accounted for by such background personality characteristics as shyness etc.
with the object in question (e.g. cleaning with a sponge), arguably a difficult deviance from default cases (where cleaning with sponges is the right thing to do). Second, and relatedly, the temporal structure of the present tasks was more complex than in previous studies. In previous studies (Rakoczy, 2008; Rakoczy et al., 2008), the third party (the puppet) entered while the child and the experimenter were playing a game. The puppet then either placed herself in the context of the ongoing activity (experimental condition) or refused to do so (control condition). In the present study, in contrast, the child and the experimenter were not engaged in any particular activity at the time the puppet entered, and the puppet then chose to put herself into one of the two possible (spatially defined) contexts. In particular in the experimental condition, it is arguably a much more difficult issue for the child to track the game context in the present study (where he child had to re-enter this context, so to speak) than it was in the previous studies (the child was in that context herself all along, so to speak). Against the background of these considerations, and given that negative findings with such spontaneous measures as the ones used here are difficult to interpret, future research will hopefully shed more light on the nature of the 2-year-olds' difficulties and clarify how much they constitute deep competence problems or merely performance problems.

All in all, the present results thus reveal that children from at least age 3 have some grasp of the context-relative normativity in simple status function assignment in games, even if the contexts in question are not marked merely verbally. The new feature of the current study was that children could not succeed by only tracking matches or mismatches between the actor's verbal announcements and her acts (because there was no specific announcement), but had to truly relativize their interpretation of the act to the respective spatial context in which it occurred. Thus, children's awareness of context-specificity does not reduce to understanding announcements (and later tracking of their fulfilment).

It should be noted, however, that although language played no particular role in expressing the puppet's commitment to a specific context, language did have an essential role in setting up the contexts and the context-specific rule structure of the games more generally. The easiest way to establish such arbitrary and relatively complex rules in the first place is to do so linguistically. It is an interesting question for future research, however, to which degree language is actually necessary for establishing such structures, and to which degree other means could be sufficient such as non- or para-verbal positive modelling (performing act A at location 1) and negative self-correction (e.g. staring to perform act A at location 2, then stopping as if becoming aware of a confusion, shaking one's head etc., and then moving over to location 1 and performing act A with full certainty etc.).

Context-relative normativity pervades social and especially societal life. All status assignment, and thereby all institutional reality is a context-relative matter: What counts as valuable in one context (a Euro coin in Europe, say), is worth nothing in another (the same coin abroad); what has power here (a teacher in school, say) does not necessarily do so there (the same person back home). It is an interesting question for future research how children's awareness of such context-relativity develops in different domains (economic, political, etc.) with different scopes and complexities. In particular, how does such awareness develop in areas of 'serious' status compared to the 'non-serious' games under investigation in the present work? One possibility worth exploring further is that games are not accidentally an area of early competence here, but something like a Zone of Proximal Development (Vygotsky, 1978). One potential
reason for this might be that games, in contrast to serious institutional affairs, have very local, transient and action-based contexts over which children themselves have some control. Furthermore, because they are ‘non-serious’, games are less holistically interwoven with the rest of institutional life, and thus carry fewer presuppositions (in contrast, e.g. to money which cannot be understood unless one understands a wide array of economical concepts) (see, e.g. Rakoczy & Tomasello, 2007; Walton, 1990 for such proposals).

Finally, it remains to be investigated in future research what cognitive processes underlie children’s growing sophistication in grasping context-relative normativity; in particular how growing flexibility in following complex conditional rules (Zelazo, Muller, Frye, & Marcovitch, 2003; Zelazo et al., 1996), and other aspects of executive control such as task switching (e.g. Cepeda, Kramer, & Gonzalez de Sather, 2001) contribute to the development of flexible context-specific reasoning about norms.

Acknowledgements

We would like to thank Heinz Gretschel, Claudia Salomo, and Manja Teich for helping in recruiting children and collecting data. Thank you to all daycare centres and children for their friendly cooperation. This work was supported by a Dilthey Fellowship of the Volkswagen Foundation and the Thyssen Foundation to the first author.

References


Young children’s understanding of context-relativity


Received 10 March 2008; revised version received 30 June 2008
## Appendix A.

<table>
<thead>
<tr>
<th>Task</th>
<th>Target object(s)</th>
<th>Usual action</th>
<th>Material</th>
<th>Procedure game</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Daxing</strong></td>
<td>Wooden blocks</td>
<td>Build towers</td>
<td>One wooden building block, half red, half blue&lt;br&gt;Other Building-blocks (all blue)&lt;br&gt;Styrofoam wall with holes into which blocks could be put</td>
<td>Use the blue/red block as dice. Only when blue is up can one put a block into the Styrofoam wall</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>One building block, half red, half blue&lt;br&gt;Styrofoam wall with holes into which blocks could be put</td>
<td></td>
</tr>
<tr>
<td><strong>Miecking</strong></td>
<td>One pen</td>
<td>Draw</td>
<td>One pen&lt;br&gt;Sheets of paper&lt;br&gt;One device into which the pen can be put and turned</td>
<td>Put the pen into the device, and one sheet of paper to each side of the device, spin the pen in the device. Where the mine points to, one can put a stamp</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>One device into which the pen can be put and turned&lt;br&gt;One stamp</td>
<td></td>
</tr>
<tr>
<td><strong>Tamming</strong></td>
<td>One piece of play-dough</td>
<td>Press and form play-dough</td>
<td>One piece of play-dough&lt;br&gt;A bowl that can be turned, half red, half green on the bottom.&lt;br&gt; A tube is attached to the bowl through which one slides objects into the bowl&lt;br&gt;A toy piano with a green a red key (Green makes a song, red only a sound)</td>
<td>Make a ball out of the play-dough, put it in the tube, turn the bowl, on which side the ball lands determines the next step. Green: press green piano key. Red: press red piano key</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>One piece of play-dough&lt;br&gt;A bowl that can be turned, half red, half green on the bottom.&lt;br&gt; A tube is attached to the bowl through which one slides objects into the bowl&lt;br&gt;A toy piano with a green a red key</td>
<td></td>
</tr>
<tr>
<td><strong>Baffing</strong></td>
<td>One sponge</td>
<td>Cleaning the table</td>
<td>One sponge (one side green, the other one yellow)&lt;br&gt;Marbles with holes, a piece of string</td>
<td>Throw the sponge as a dice. Only when the green side is up can one put a marble on the string</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>One sponge (one side green, the other one yellow)&lt;br&gt;A shallow cardboard box, attached to it an oblique transparent plastic plane with a small hole in it</td>
<td>Press the sponge through the hole so that it lands in the cardboard box</td>
</tr>
</tbody>
</table>

3-year-olds | 2-year-olds

Wooden Building-blocks (all blue)<br>Styrofoam wall with holes into which blocks could be put | Take turns in putting one block into a fitting hole |

One pen | Take turns in putting the pen into the device and turning it |