

# Equal

Episode Number	Episode Description	Discussion Questions	My Ideas
1.1 Solving $4 + 5 = \square + 3$ .	A kindergartner solves the problem $4 + 5 = \square + 3$ . He uses Direct Modeling to compute both sides of the equation. (We see the same child in second grade in episode 2.2) (Episode 2.1 on CD)	What does he understand about the equal sign? What strategies does he use to compute his answer?	
1.2 Using Relationships to Solve Number Sentences.	A first grader solves the open number sentence $6 + 2 = \square + 3$ and the true/false number sentence $57 + 38 = 56 + 39$ . He uses relational thinking to solve both problems. He solved these problems during an hour-long math class. Although the teacher interacted with several different children, we only show this child's interactions in this episode. (Episode 2.2 on CD)	Compare his strategies on these two problems. How does his strategy vary from the child in episode 1.1?	
1.3 Developing Children's Conceptions of Equality.	A fourth-grade teacher has her first discussion about the equal sign with her students. The teacher did not explicitly discuss the meaning of the equal sign before posing true/false and open number sentences to her students. When children express misconceptions, the teacher poses number sentences to challenge these misconceptions. Excerpts from a 25-minute discussion are shown. (Episode 2.3 on CD)	Note how the equal sign appears in different places in the different number sentences. Why might have the teacher chosen these specific number sentences?	
1.4 Developing Children's Conceptions of Equality.	A second- and third-grade teacher poses the problem $9 + 3 = \square = 8$ to her students. Although these children have worked through many problems such as these, some students still say that 12 should go in the box. Rather than immediately commenting on the incorrect answer the teacher elicits other children's answers and asks other	What misconceptions about the equal sign do the children in this episode express? How do the children who understand the equal sign help the other children to develop their understanding?	

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		<p>children to justify their answers. This episode shows that developing children's conception of equality is a process to engage in throughout the school year. It is the first five minutes of math class and has not been significantly edited.</p>	
<p>1.5 Developing Children's Conceptions of Equality over Time.</p>	<p>Stop the video between segments and ask what problems you might pose next to this group of children. Are there any problems that are particularly pivotal for certain children?</p>	<p>A teacher works with a group of five second graders. We see these children on four different days over the course of five weeks. Before these interactions began, all of the children thought that 12 was the number that would make the number sentence <math>8 + 4 = \square + 5</math> true. In these interactions, the teacher carefully chooses problems to challenge children's misconceptions about equality. She also facilitates discussion so that children can make their implicit ideas explicit. In addition to gaining an understanding of equality, some children begin to use relational thinking.</p>	
<p>1.6 Sharing Strategies for <math>2 + 5 = 6 + \square</math>.</p>	<p>How does each child solve this problem? What do their strategies tell you about their understanding of equality?</p>	<p>A group of four second graders solves the problem <math>2 + 5 = 6 + \square</math> and shares their solution strategies. Two children share strategies that aren't completely clear and one child explains an incorrect strategy.</p>	