

**MATH FOR KIDS**  
**September 22, 2003**

**Games and strategies:**

1. Two children take turns breaking up a rectangular chocolate bar 6 squares wide by 8 squares long. They may break the bar only along the divisions between the squares. If the bar breaks into several pieces, they keep breaking the pieces up until only the individual squares remain. The player who cannot make a break loses the game. Who will win?
2. There are three piles of stones: one with 10 stones, one with 15 stones, and one with 20 stones. At each turn, a player can choose one of the piles and divide it into two smaller piles. The loser is the player who cannot do it. Who will win, and how?
3. There are two piles of 7 stones each. At each turn, a player may take as many stones as he chooses, but only from one of the piles. The loser is the player who cannot move. Who will win?
4. Two players take turns putting pennies on a round table, without piling one penny on top of another. The player who cannot place a penny loses. Who will win and how?

**Logical problem:**

5. During a trial in Wonderland the March Hare claimed that the cookies were stolen by the Mad Hatter. Then the Mad Hatter and the Dormouse gave the testimonies which, for some reason, were not recorded. Later on in the trial it was found out that the cookies were stolen by only one of these three defendants, and, moreover, only the guilty one gave true testimony. Who stole the cookies?

**Constructions:**

6. There are two egg timers: one for 7 minutes and one for 11 minutes. We bought by mistake an ostrich's egg and must boil it for exactly 15 minutes. How can we do that using only these timers?
7. The number 458 is written on a blackboard. It is allowed either to double the number on the blackboard, or to erase its last digit. How can we obtain the number 14 using these operations?