Four students, Dan, Nick, Sky and Ashleigh, got in trouble one day. Don't even ask me what they did, because it was just so unmentionably bad that I can't repeat it in polite company. If I told you, you would probably get an attack of the shivers, and would never again look at Doritos the same way.

Anyway, when a shocked Mrs. Limke, their math teacher, discovered what they'd done, she gave them a stern punishment. She wanted to keep their little hands busy for the next few hours, and came up with a task that would be sure to give them hand cramps that would last for several days. However, the four students were also very clever, and they wound up finishing the task quickly and with very little manual labor.

Here was their punishment. Mrs. Limke gave them 10 rolls of pennies, which is $5 or 500 pennies. She told them to complete the following tasks:

1) The first time through, number all of the pennies, and make them all HEADS UP {like I've shown in the picture at right}.

2) The second time through, start with penny #2 and FLIP every other penny (in other words, the even numbered pennies would now be TAILS UP, and the odd numbered pennies would remain heads up).

3) The third time through, start with penny #3, and flip every THIRD penny (in other words, penny #3 would now be tails up, penny #6 would be heads up, penny #9 would be tails up, etc.).

4) The fourth time through, start with penny #4 and flip every FOURTH penny (so now, penny #4
becomes heads up, penny #8 becomes heads up, penny #12 becomes tails up, etc.).

5) Continue this pattern 500 times! In other words, the fifth time through, start with penny #5 and flip every fifth penny, the tenth time through start with penny #10 and flip every tenth penny, and so on and so on. "You'll really know your multiplication facts after this", she cackled.

After she left, one student said, "Wait a minute... how will she check our work? There must be a pattern!" So they explored the problem with a much smaller number of pennies, and discovered which ones would be heads up at the end of the task. With this pattern discovered, they simply placed the 500 pennies in the correct final orientation. All but about two dozen were tails up.

**Which of the 500 pennies would be heads up at the end of this task? Remember to explain how you got your answer.**