

①(平見班)

Research on the Conditions for Chalk Breakage
~Relationship Between Humidity · Angle and Strength~

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Abstract

We examined the relationship between chalk strength and humidity, and strength and angle, respectively. The higher the humidity, the more fragile the chalk was, especially at 90% humidity, the most fragile. It was also shown that chalk did not break even under the most fragile conditions when the angle was 61 degrees or greater. These results suggest that holding the chalk at the proper angle is important to prevent it from breaking during class.

1 Introduction

We noticed that teachers tended to break more chalk on high humidity days than on low humidity days while taking classes at school, and that there were individual differences in the angle at which teachers held their chalk. We were intrigued by those things and conducted two experiments. By conducting this study, we aimed to reduce the number of chinks that teachers break during class and to reduce the amount of time wasted due to chalk breaking.

2 Experiment Method

We performed the following experiment.

[Experiment 1] : Measuring the dependence of chalk strength on humidity.

[Experiment 2] : Finding the angle where the chalk is likely to break.

3 Results and Inspections

[Experiment 1] :

Chokes left in high humidity broke with a smaller mass

than those left in low humidity.

[Experiment 2] :

Even under the most fragile conditions(Humidity90% ,2.5 cm),
chalk will not break if the angle is above 61 degrees.

4 Conclusion

As initially assumed, the more humid the environment, the more likely the chalk is to break. Also, theoretically, if the angle between the blackboard and the chalk is 61 degrees or more, the chalk will not break.