



THE FRICTION FORCE AND EFFECTS IN DAILY LIFE

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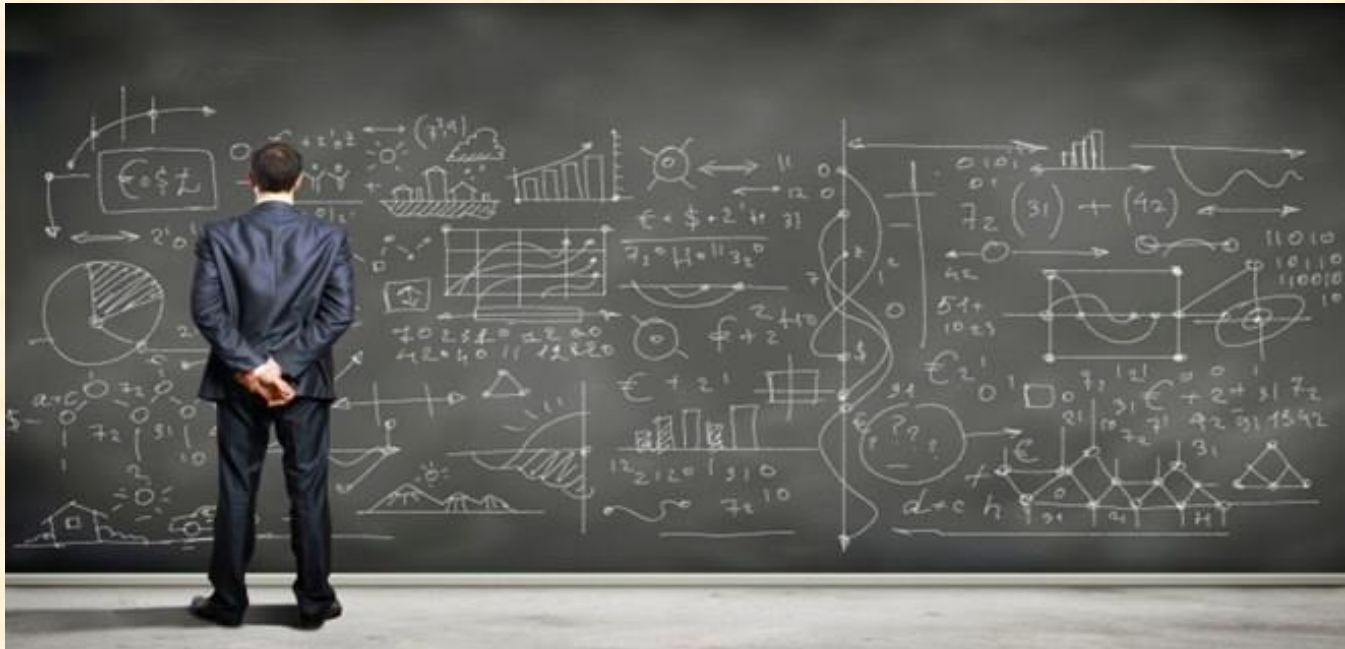
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Physics teachers especially need teaching methods because according to many students

PHYSICS IS DIFFICULT.



Teaching methods vary in science subjects.



Visual Learners



They are an excellent organizer and they instinctively follow directions.

Auditory Learners



They work in groups and solve difficult problems.

Kinesthetic Learners



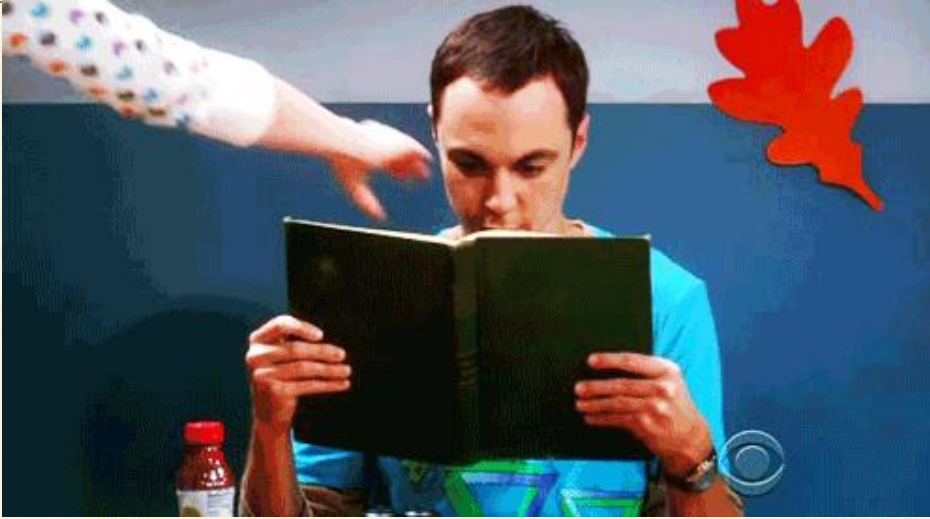
They have high levels of energy and they are excellent experimenters.

The topic of this study is friction force



We designed an activity at a lesson about friction force.





Before the activity, a paper was distributed to students.



FIRST STEP

Students exerted force on the overlapping pages of two nested books.

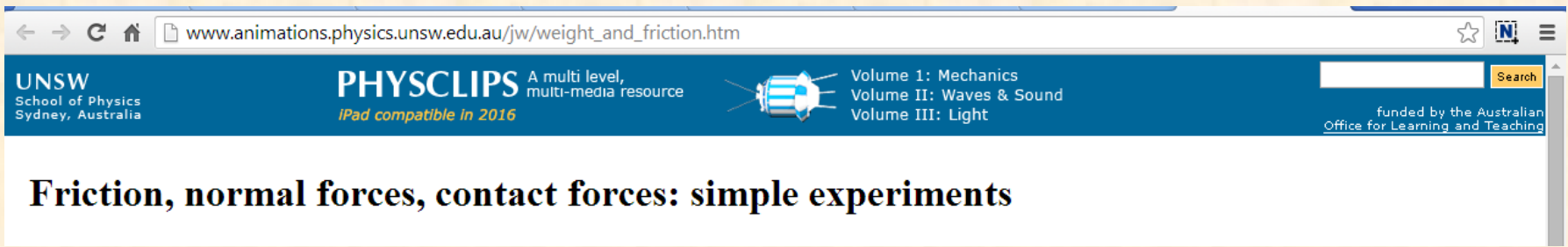




SECOND STEP

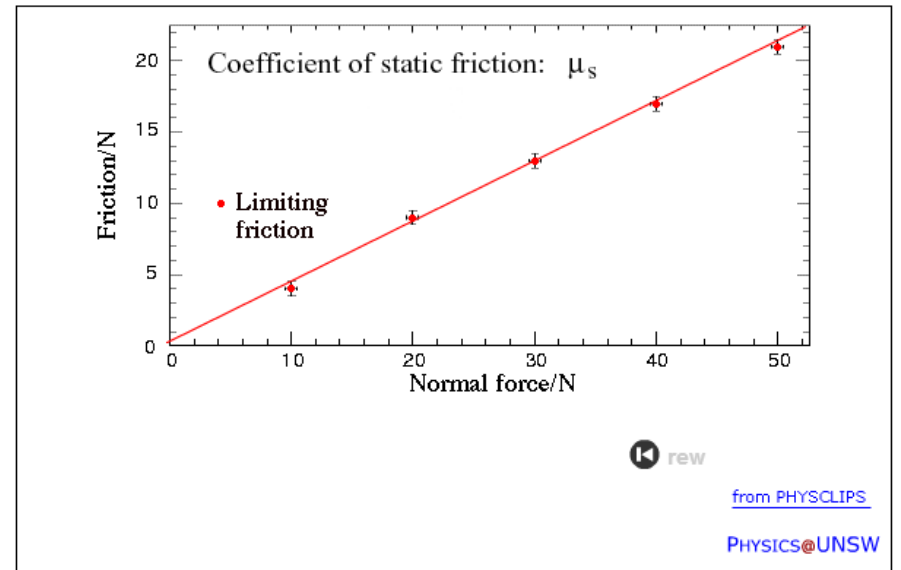
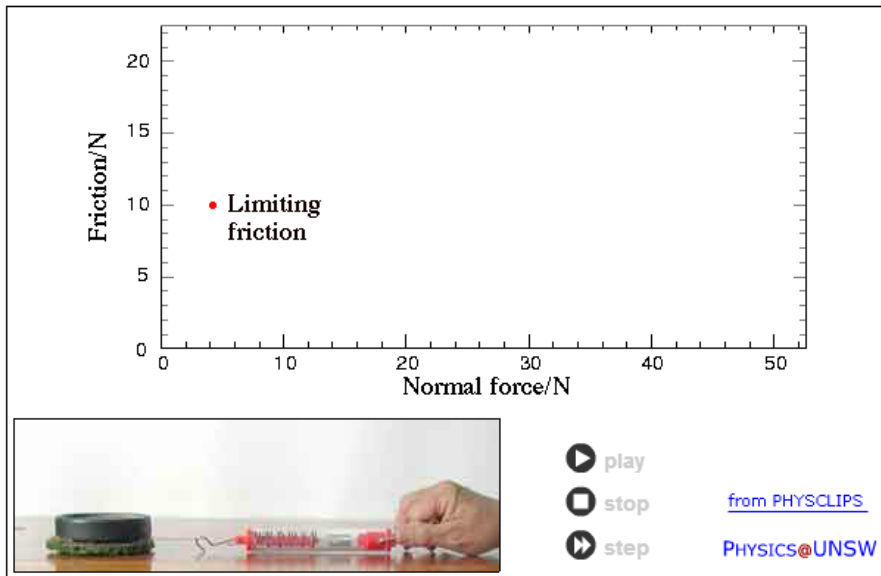
Students studied on a simulation whose a below web address.

http://www.animations.physics.unsw.edu.au/jw/weight_and_friction.htm

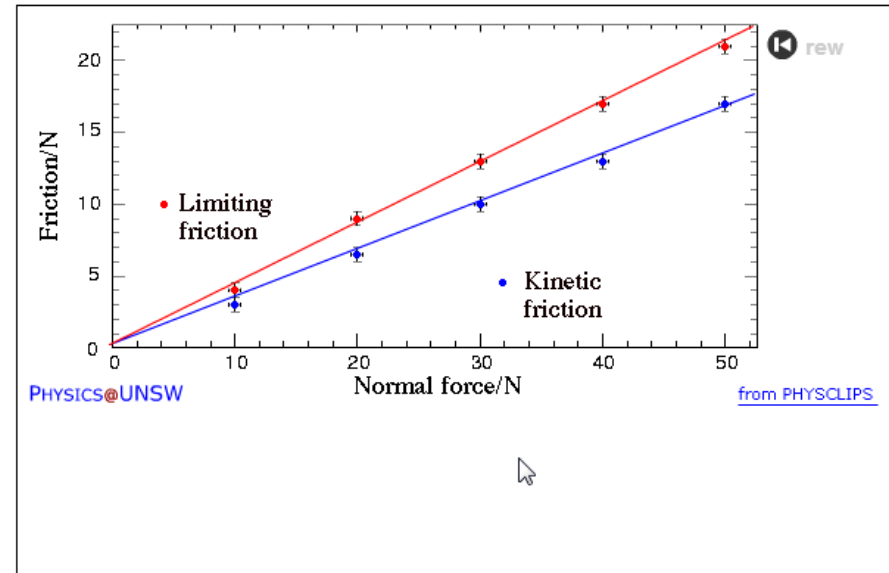
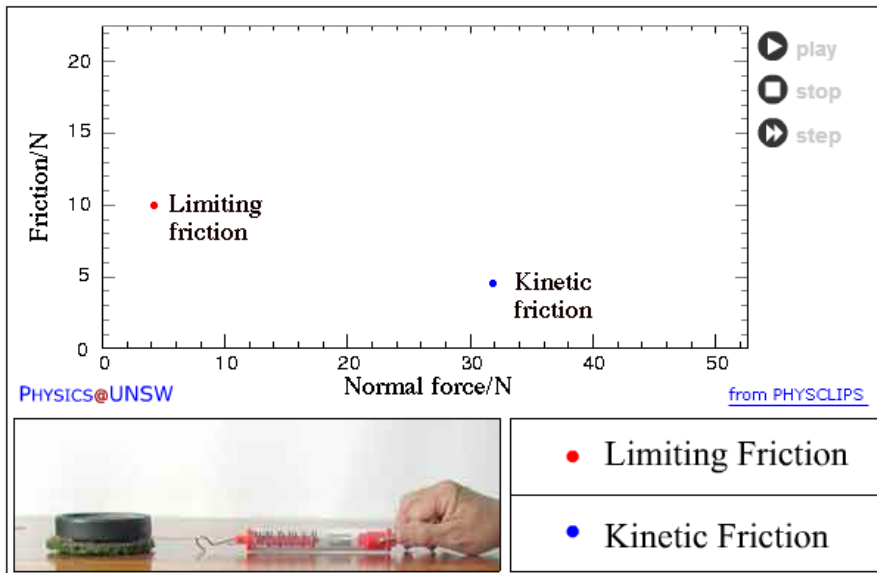


Coefficients of static and kinetic friction

This set of film clips shows a simple experiment designed to determine the coefficients of static and kinetic friction. The table top is believed to be vinyl. The lowest disc is mounted on a sample of artificial turf. The iron discs are masses originally used on a balance. Each has a mass of 1 kg. A spring balance is used to apply and to measure the horizontal force. In order to make short, simple film clips, the design does not include precise control of applied force. To determine limiting friction, the lateral force was gradually increased. The last frame before the load first moved is displayed as a still to estimate the applied horizontal force, which is assumed approximately equal to (minus one times) the limiting friction.

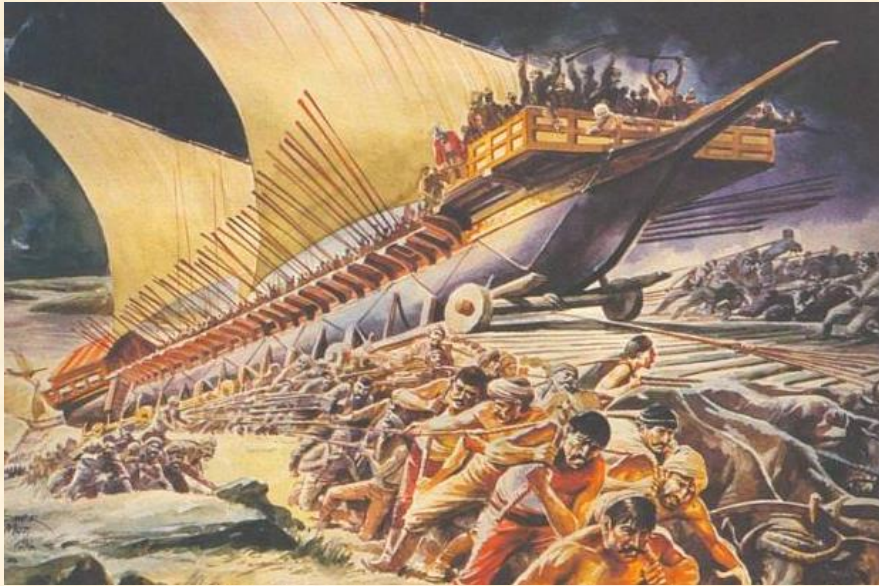


These experiments show that, for these two surfaces and over this range of forces, both kinetic friction F_k and limiting friction F_{\max} are approximately proportional to the weight and thus to the normal force.



THIRD STEP

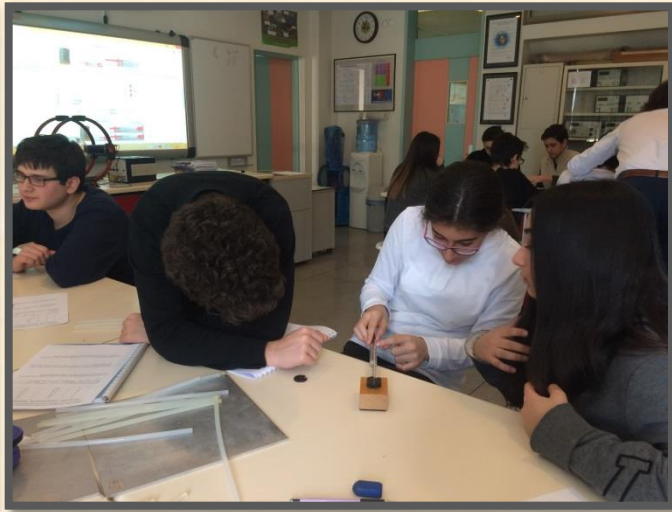
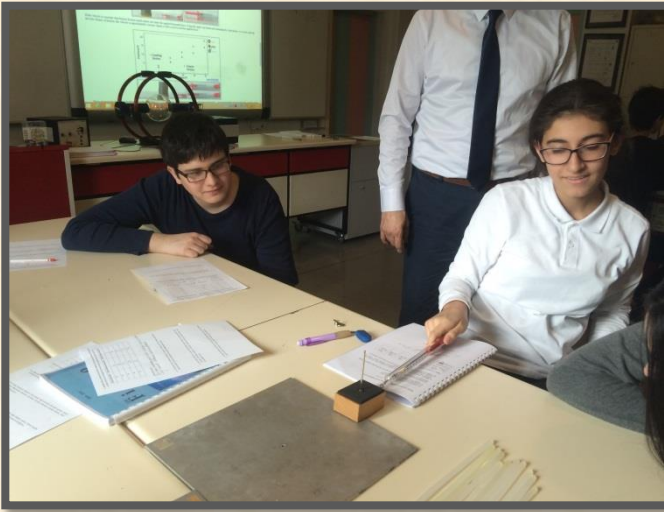
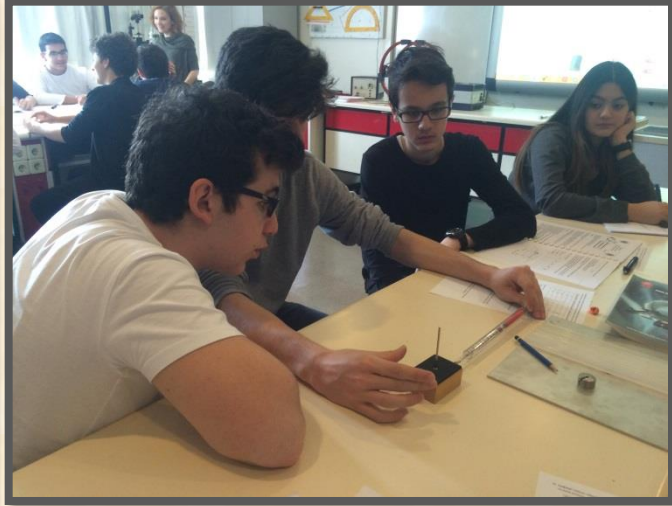
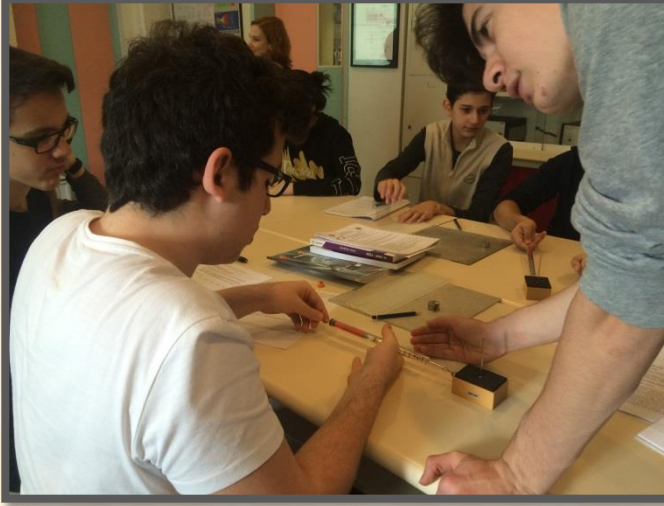
How was Sultan Mehmet conquer Istanbul?



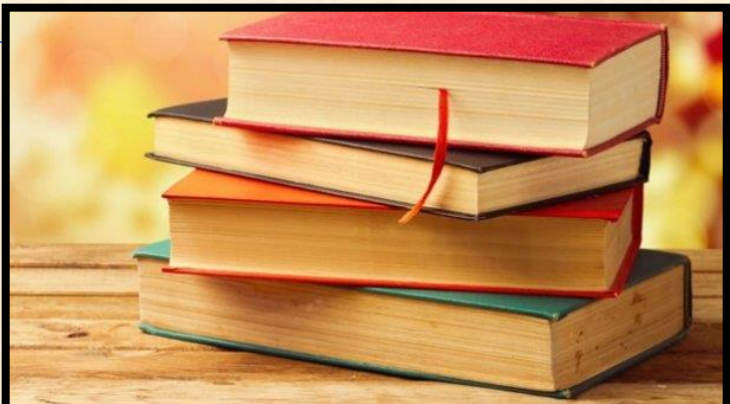
THIRD STEP

They observed that the object was moved on different surface.





LAST STEP



Daily life examples



What did we observe?

- They were highly motivated and enjoyed the class.
- Friction force was associated with daily life.
- They were actively participated all steps during lesson.

How did we evaluate?

- They answered the question Part 2 which in paper.
- After this study, the students were evaluated with a subject test.



Conclusion

- Students at all stages discussed with each other about this study.
- During the performance of all activities, the students became more active on investigating different learning styles.

- The answers to their questions about the friction force were given.
- It also allows students to improve their independent learning skills and cooperative problem solving skills.





THANK YOU