



Dynamic and static friction

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Słowa kluczowe:

siła tarcia, tarcie

DZIEDZINA:

Physics, Classical mechanics

Cel doświadczenia:

Why is it hard to push a wardrobe that is standing still? Why can you push it with less force when it has started to move? The purpose of the experiment is to familiarise club members with the difference between static and dynamic friction.

Spis materiałów:

1. a long wooden stick, e.g. a broomstick
2. a ribbon
3. several heavy metal nuts

Etapy realizacji:

1. Hang some heavy metal nuts or other objects as a load on the ribbon.
2. Keep the wooden stick at an angle and hang the ribbon with the nuts on it. The inclination angle of the stick should not be too large; otherwise the ribbon might slide down at once.
3. Gently turn the stick around its axis. Observe what happens when you rotate the stick and when you stop.

Pytania do doświadczenia:

1. What is the difference between static and dynamic friction?
2. When does the ribbon start to move? Why?

Opis zjawiska:

Ciekawostki:

1. The phenomenon of friction was used for making fire. When you rub a hard piece of wood against a softer piece this leads to obtaining high temperature. If you apply a flammable material to the wood heated this way we may start a fire.
2. Changing winter or summer tyres depending on the season of the year is related, among other things, to the properties of the material from which these tyres are made. Summer tyres are composed of a mixture of synthetic rubber and soot, and so they are elastic and ensure better grip in positive temperatures. At lower temperatures they get harder and do not ensure appropriate friction against the surface. Winter tyres contain a silica additive and therefore are more flexible in negative temperatures than summer tyres and ensure better grip.