Friction

Whenever two surfaces are in contact and in _____ there is a force of friction which acts _____to the surfaces.

The force of friction always acts _____the motion. For this reason, frictional forces can cause _____to be wasted.

However, it should be remembered that the force of friction can be useful. For example:

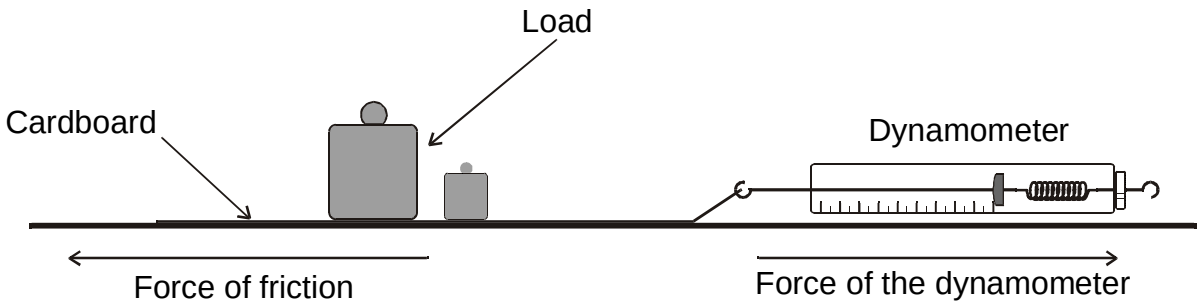
i) _____

ii) _____

The force of friction between two solid surfaces can be reduced by _____

_____

Experiment to investigate the force of friction between two solid surfaces.



Try to pull the piece of card at a *slow but constant speed* along the surface of the bench.

If the card moves at *constant speed*, we can say that the magnitude (_____) of the force of friction is just _____ but _____ to the force provided by the dynamometer. Therefore the dynamometer tells us the magnitude of the force of friction.

Repeat the measurements for different loads and different materials.

Results

	1	2	3
Load /N	Force of friction /N	Force of friction /N	Force of friction /N

Conclusion.

The magnitude of the force due to friction between two surfaces depends on

i) _____

ii) _____

The coefficient of friction.

If the force of friction is divided by the force which is pushing the two surfaces together, the answer is a _____. The number obtained by this division is called the coefficient of friction *for the two surfaces considered*.

For example

steel/steel	coefficient = (about) 0.15
car tyre/ice	coefficient = (about) 0.05
car brake/steel	coefficient = (about) 0.4

The coefficients of friction measured in our experiment were, approximately

1. _____ for _____ against _____
2. _____ for _____ against _____
3. _____ for _____ against _____