

Language study *The present passive*

Study these instructions for a simple experiment on friction.

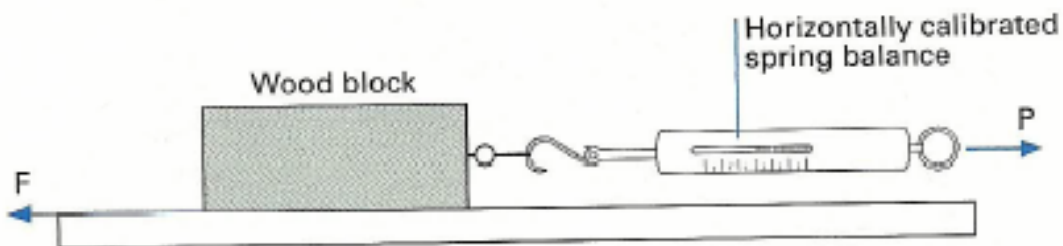


Fig. 4

- 1 Place a block of wood on a flat surface.
- 2 Attach a spring balance to one end of the block.
- 3 Apply a gradually increasing force to the balance.
- 4 Note the force at which the block just begins to move.
- 5 Pull the block along so that it moves at a steady speed.
- 6 Note the force required to maintain movement.
- 7 Compare the two forces.

When we describe this experiment, we write:

A block of wood *is placed* on a flat surface. A spring balance *is attached* to one end of the block.

This description uses the present passive. We form the present passive using *is/are + past participle*.

Complete this description of the experiment using the present passive.

A block of wood ¹_____ on a flat surface. A spring balance ²_____ to one end of the block. A gradually increasing force ³_____ to the balance. The force at which the block just begins to move ⁴_____.

The block ⁵_____ along at a steady speed. The force required to maintain movement ⁶_____. The two forces ⁷_____. It is found that the first force is greater than the second.

What does this experiment show?

The use of the passive in the description of an experiment

Look at this sentence:

- (a) Bill and I measured the extension in the steel bar.

We would not normally write this type of sentence in a report on an engineering experiment. Instead we would write:

- (b) The extension in the steel bar was measured.

Sentence (b) is an example of the passive construction. The passive is common in scientific writing where the action described is felt to be more important than the actors.

Look at the following examples of active and passive sentences:

active

We suspend a 1 kg mass from a light bar.

We measured the distance between the mass and the fulcrum.

We may calculate the moment of the force in two ways.

passive

A 1 kg mass is suspended from a light bar.

The distance between the mass and the fulcrum was measured.

The moment of the force may be calculated in two ways.

Now rewrite each of the following sentences in the passive.

1. If we place a smooth roller on an inclined plane, it will run down the plane.
2. Two other forces act on the roller.
3. We can apply this force in any direction providing one component acts up the plane.
4. We call the third force the normal reaction – R.
5. We can therefore draw a triangle of forces for the system.
6. The diagram shows this force – P – acting parallel to the plane.
(In the diagram, this force)
7. To keep the roller in equilibrium we must apply a force to it.
(A force)
8. One is the force due to gravity – F_g – which we can consider to act vertically downwards through the midpoint of the roller.
9. We now find that we have an example of a three-force system.
(It . . . now . . . that we)
10. As we assume the roller and plane to be absolutely smooth, this reaction is at right angles to the surface of the plane.

Paragraph building

Draw the following diagram and label the forces P, R, and F_g on it. Then rearrange the passive sentences so that they make a logical paragraph of which your diagram is the illustration. Sentence 1 is already in the correct position.

