



Give the marks for the points in the marking scheme; an answer in other words that says the same is right.

1 Key words

1. motion
2. force
3. newton
4. linear
5. easy
6. complex machine

K • 3

Each carries 0.5 mark.

2 Label the diagram

- | | | |
|------------|--------------------|-------|
| 1. spring | 3. hook | K • 2 |
| 2. pointer | 4. scale (newtons) | |

Each carries 0.5 mark.

3 Match the following

- | | | |
|---|---|-------|
| 1. kicking a ball lying on the ground → | f. a body at rest starts moving | U • 3 |
| 2. a goalkeeper catching the ball → | g. a moving body comes to rest | |
| 3. pushing a moving swing harder → | d. the speed of a moving body changes | |
| 4. a batsman hitting a cricket ball → | e. the direction of a moving body changes | |
| 5. rolling dough into a roti → | c. the shape of a body changes | |
| 6. blowing up a balloon → | b. the size of a body changes | |

Each carries 0.5 mark.

4 Multiple choice

- i. a. at rest

U • 1

The book stays on the same seat, so compared with the bus it is at rest. Compared with the road outside, it is moving with the bus. Rest and motion depend on what you compare with.

- ii. c. a swing moving to and fro

U • 1

A swing moves along an arc, a curved path. The other three move along straight lines.

- iii. c. a spring balance

K • 1

A spring balance measures force: the spring stretches more for a bigger force, and the pointer shows it in newtons.

- iv. b. force on the handle, work at the sharp edge

U • 1

You push on the handle. The force is passed along the blade to the sharp edge, which cuts the wood. That is transformation of force.

- v. c. a pair of scissors

K • 1

Scissors are a simple machine: two levers joined at a pivot, worked by your own effort. A motorcycle, a tractor and a bus are complex machines run by fuel.

5 Very short answers

- a. MARKING SCHEME

K • 1

- ✓ A push or pull that changes (or tries to change) the state of rest or motion of a body.



- b. MARKING SCHEME K · 1
✓ Passing a force from one place to another.
- c. MARKING SCHEME A · 1
✓ Curvilinear (it moves along a circle).

6 Short answers

- a. MARKING SCHEME U · 2
✓ Any one difference, e.g. along a straight line; along a curved path.
✓ Any second difference, e.g. direction stays the same; direction keeps changing, or an example of each.
- b. MARKING SCHEME U · 2
✓ Whether a body is at rest or in motion depends on what it is compared with.
✓ A correct example, e.g. a passenger in a moving bus is at rest compared with the bus, but in motion compared with the trees outside.
- c. MARKING SCHEME U · 2
✓ It lets us lift the bucket by pulling the rope down, which is easier (we can use our weight, keep our back straight).
✓ Any second reason, e.g. the rope runs smoothly and doesn't rub on the well's edge, or we can stand safely to one side.
- d. MARKING SCHEME K · 2
✓ Any one use, e.g. a heavy load lifted with less effort.
✓ Any second use, e.g. more work in less time, or effort in a convenient direction.

7 Long answer

ANSWER

K · 4

A force can make a body at rest move (kicking a ball); bring a moving body to rest (a goalkeeper stopping the ball); change the speed of a moving body (pushing a swing harder); change the direction of a moving body (a bat hitting a cricket ball); change the shape of a body (rolling dough into a roti); change the size of a body (blowing up a balloon).

MARKING SCHEME

- ✓ A first effect with a correct example.
- ✓ A second effect with a correct example.
- ✓ A third effect with a correct example.
- ✓ A fourth effect with a correct example.

8 Think

ANSWER

HA · 2

When you sweep, you hold the **top of the handle** with one hand and push the **middle of the handle** sideways with the other. The force of your hands is passed down the handle to the **bristles** at the bottom. The bristles press on the floor and push the dust and dirt along. So the force applied at the handle is transferred to the bristles, where the work (sweeping) is done.

MARKING SCHEME

- ✓ The hands push on the handle (the effort).
- ✓ The force passes down the handle to the bristles, which push the dust along (the work), so the force is transferred.



9 Activity: Where is the effort, and where is the work? (Activity 6.10)

(not marked)

WHAT STUDENTS SHOULD FIND

Axe: effort on the handle; work at the sharp edge, which splits the wood. Spade: effort on the handle; the blade's edge cuts the soil. Bicycle brake: effort on the brake lever; the brake pads press on the wheel. Scissors: effort on the handles (finger rings); the blades cut the paper or cloth.

Marks by level	Knowledge	Understanding	Application	Higher ability	Total
Marks	15	12	1	2	30

