



Exercise 3.3 Stretching springs

Forces can change an object's shape. The object may be stretched or compressed. In this exercise, you will use the correct scientific terminology to describe these effects.

1 Read the following paragraph.

If you push or pull an object, its shape will change. For example, when you kick a football, it becomes squashed. If you stretch a rubber band, it gets longer. Pushing or pulling more, makes the shape change more.

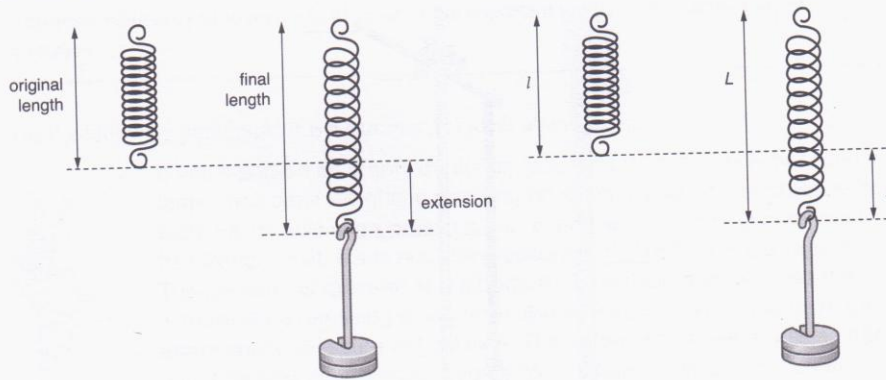
Now complete the sentences below using words or phrases from the list to fill the gaps. This will give the same information using correct scientific terms.

compressed become deformed exert a force on deformation
increasing the force extends

- a** If you an object, it will
.....
- b** For example, when you kick a football, it becomes
- c** If you stretch a rubber band, it
- d** will increase the
- 2** Using words from question **1**, give the scientific words which mean the same as the following verbs:
- a** to get longer = to
- b** to squash = to
- c** to change shape = to
- d** to become more = to



The diagrams show what happens when a weight is hung on the end of a spring. The spring gets longer.



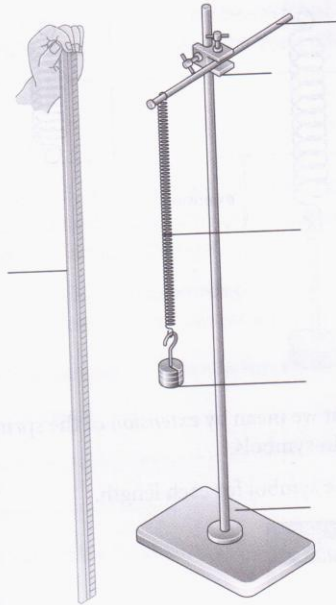
The diagram on the left shows what we mean by *extension* of the spring. The diagram on the right shows the same information in symbols.

3 Complete the table showing the symbol for each length.

Length	Symbol
original length	
final length	
extension	

- 4 It is important to understand what we mean by the extension of the spring. Read each statement below. Put a tick (✓) if the statement is correct; put a cross (✗) if it is incorrect.
- a The extension is the increase in length of the spring.
 - b final length = original length + extension
 - c To calculate the extension, subtract the final length from the original length.
 - d The extension is calculated by subtracting the initial length from the final length.
 - e extension = final length - initial length
 - f $x = L - l$
 - g The increase in length of the spring is equal to the extension.

- 5 The picture shows the equipment used in an experiment to find out how a spring stretches when weights are attached to it.



- a Label the diagram using these words:

clamp stand boss metal rod
long spring hanger with weights
metre rule

A *rule* is the same as a *ruler*. It is a special term used for a ruler that is one metre long.

- b Write instructions which will tell someone how to carry out this experiment. You should use some or all of the verbs from the list below. The first sentence has been done to help you.

hang attach measure hold clamp add repeat

Clamp the metal rod in the boss.

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