# Exercise and Pulse Rate

**Subject: Biology**

**Overview:**
This simple experiment is to measure what happens to the pulse rate during exercise.  The circulatory or vascular system is a network of tubes filled with blood.  Blood is kept flowing in one direction by the pumping of the heart.  The heart is a muscular organ and with blood vessels forms part of the cardiovascular system.  The cardiac cycle is a series of events which make up a complete pumping action of the heart and can be heard as a heart beat.

**Equipment required:** LogIT Datalogger
Wireless Heart receiver
Wireless Heart transmitter
Form of exercise ie. skipping rope,
exercise bike, step ups etc.

**Hazards:**
Students should be supervised at all times.
Ensure the datalogger cannot come into contact with water or be exposed to damp.
Make sure that the activity is suitable for the pupils involved and is performed in a suitable location.
Always check your local regulations or a school advisory service such as CLEAPSS or SSERC for guidance on the use of any hazardous material or source.

**Suggested Setup:**
1. Connect the pulse transmitter as described in the instructions overleaf.
2. Connect the pulse receiver to the LogIT datalogger.
3. Connect the datalogger to a computer if required.
4. Check that the pulse is being received by the logger or software.

**Suggested Method:**
1. Start either the datalogger of datalogging software.
2. Begin exercising after a time and observe the pulse rate.
3. After a few minutes stop exercising but continue recording the pulse rate.
4. Stop logging once the pulse rate has returned to the initial pulse rate prior to exercise.

Note: It can be interesting for the student being monitored to see the graph trace as the exercise is being performed and to see the drop off at the end of exercise.

**Results:**
What do the results show?
Are the results a surprise?

**Going further:**
What factor could you vary in the experiment?  For example, if using an exercise bike, what effect on the pulse rate might increasing the resistance of the bike have (ie. simulate cycling up hill).
What effect might continually varying the difficulty of the exercise have on the shape of the graph?
What other piece of data might you like to record in addition to the pulse rate?

Biology