SENSOR(S)   - Internal Light
- Internal Temperature
- Internal Sound

INVESTIGATE   • The environment we work in
• The use of scientiȚc equipment and the measurement used
• How to analyse results and draw conclusions

INTRODUCTION TO THE INVESTIGATION

One of the key skills in science is to be able to understand the data you have collected and form one or more conclusions as to what the information means and how it may effect future investigations.

Another skill is being able to use scientiȚc instrumentation to gather the information in the Țrst place. This experiment is a good introduction as to the idea behind remote datalogging (logging away from the computer for a period of time) and the function of the internal sensors.

Before, or even during, the recording discuss what the pupils feel the graph will show at different times of the day such as at night or during lunchtime.

A cut down version of the activity can be carried out during a lesson in real-time by just looking at the sound sensor. The Explorer can be used to record the classroom and show when the sound level of the pupils reaches a certain point – if a large display is available the pupils can be set a target of keeping the volume below a certain level.

Once you have gathered the data and downloaded the results the pupils should discuss the results and try to draw conclusions as to what was happening at different times of the day - this can often be done in conjunction with looking at the school timetable.
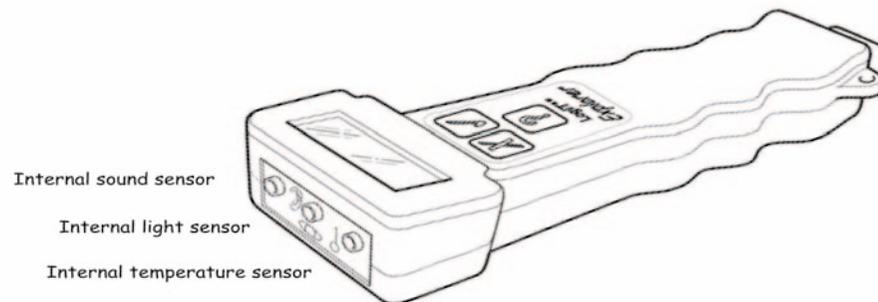
ENVIRONMENT – THE CLASSROOM

RESOURCES

- Explorer datalogger, datalogging software, computer, LogIT computer link cable.
- Large display e.g. projector, TV if available

WHAT TO DO

- Find a secure and central place for the Explorer.
- Set up the Explorer either Ṭrst thing in the morning or last thing in the afternoon.
- Press the Explorer green button (Run) to start logging.
- Leave the Explorer to log for a chosen length of time - at least 24 hours.
- After the time period turn on the Explorer (any button) and press the Red Button to stop logging.
- Upload the results to the computer and view the graph.

The best location for the Explorer is on a shelf or cupboard away from direct intervention and fairly central to the classroom - this avoids the readings being 'manipulated' e.g. if placed next to a heat source the temperature sensor will record this rather than the more general room temperature.

DIAGRAM

Internal sound sensor

Internal light sensor

Internal temperature sensor

SAFETY

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- Avoid placing the Explorer anywhere that it might come into contact with water or dirt.
- Ensure that the Explorer is on a ṭat surface and avoid it being knocked, dropped or items placed on it.

ABOUT THE RESULTS

- When was the noisiest time and when was the quietest ?
- When was it coldest ? Did any of the other sensors change when it was cold ? How did they change ?
- Did anything happen after you left school or before you arrived ?
- Was it always quiet at certain times, was it always hot or cold at certain times ?
- Was it a fair test - would it change your results if you moved the Explorer somewhere else in the class ?

EXTENSION ACTIVITIES

- Move the Explorer somewhere else in the class and see if this effect the results - if it did, why ?
- Monitor outside the school or in other rooms such as the hall or gym.
- See if you can arrange to monitor another type of work place such as an ofṬce or factory - using the knowledge you have, try to estimate the kind of readings you will see at different times of the day or night.
- Produce a display of your results showing pictures of what happened at certain times along the graph and link this to the school timetable.