

Hibernation: An Insulation Investigation

Design a nest to insulate a hibernating dormouse

5-9

Properties of Materials



Background

When a dormouse hibernates it reduces its metabolic rate and heart rate to the minimum safe level to maintain life. This saves energy but the dormouse must find a suitable place to nest where the temperature remains stable. The name 'dormouse' comes from the French 'dormir' – to sleep.

A hibernating dormouse provides a novel context for the study of the insulating properties of different materials and school microclimates.

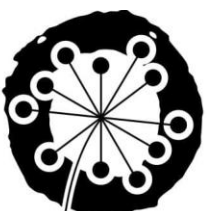
This activity can also support pupils' scientific literacy as they plan, hypothesise, use fair testing and record results graphically.

Equipment

- Water-tight lidded plastic cups
- Sticky labels and/or permanent pens
- Warm water ~ 37°C
- Thermometer
- Varied natural or man-made materials

Activity

1. Each child/team needs to decorate a plastic cup to look like a dormouse.
2. They then build a nest for their 'dormouse' using the materials that they believe will be best for both insulating and camouflaging it.
3. Once the nest is completed, the cup needs to be filled with hot water.
4. The initial temperature of the water needs to be recorded.
5. The temperature of the dormouse then needs to be measured every 2 minutes.
6. The resultant temperature drop can be recorded in a line graph.
7. Discuss the reasons for the success of the nesting materials of the dormouse with the lowest overall temperature drop after 10 minutes.



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