# C3.1 Integration of body systems: data-based questions

What the Cell · DP Biology · data-based questions

**Name** _____ **Date** _____ **Total** _____ / 8

**Read the data carefully before you answer.** The number of marks shows how many separate points to make. Show your working in calculations.

## 1 Body clocks in mice

8 marks

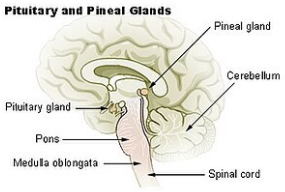
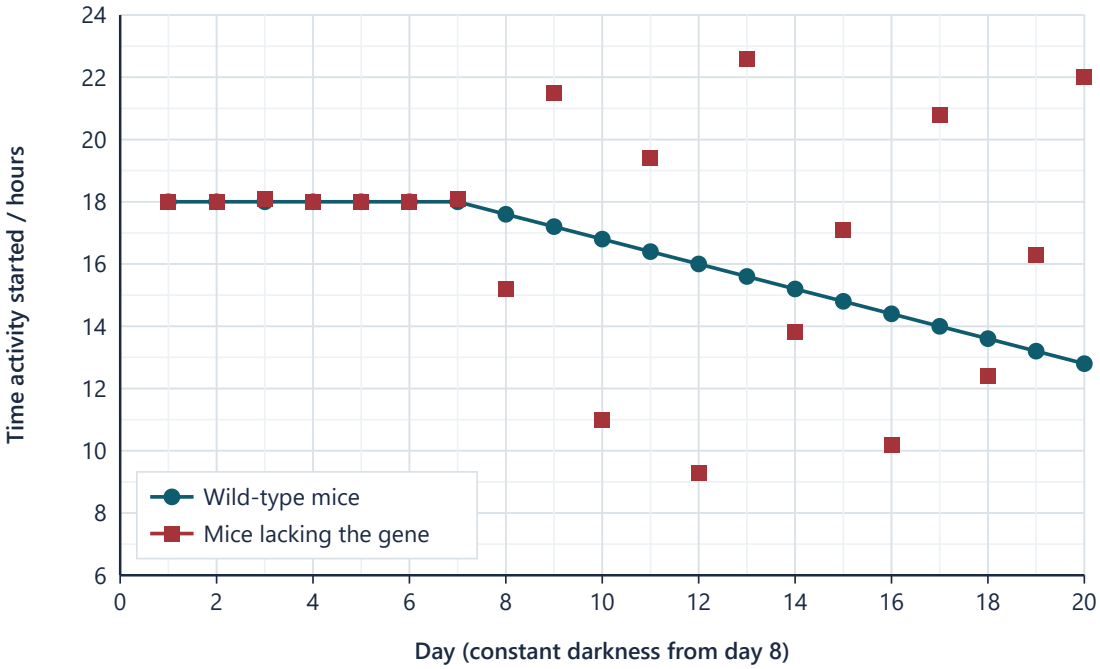



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Mice were kept with 12 hours of light and 12 hours of dark (lights off at 18:00) for 7 days, then in constant darkness for 13 days. The time each mouse started running on its wheel was recorded every day. Normal (wild-type) mice were compared with mice lacking a gene for a clock protein.




a **State** when both groups of mice became active during the first 7 days. **[1]**

b **Suggest** one advantage to mice of being active at night. **[1]**

c **Calculate** the length of one daily cycle (the period) of the wild-type mice in constant darkness. Show your working. **[2]**

d **Compare** the two groups in constant darkness. [2]

e **Evaluate** the hypothesis that this gene is needed for the body clock. [2]