Your body knows when it is time to go to sleep and when it is time to wake up. This natural body clock is a circadian rhythm - a biological process that follows a roughly 24 hour cycle.

It is important to make sure you get enough sleep. A lack of sleep can cause tiredness during the day which means that you find it difficult to concentrate and do well in tasks, such as learning at school. A lack of sleep is also linked to illnesses such as depression, diabetes and obesity.

Night owls and morning larks

Even though we all have them, people’s circadian rhythms can be slightly different; some prefer to stay up later at night and then wake up later in the morning. Others go to bed earlier and rise early in the morning.

There is scientific evidence that the circadian rhythms in adolescents (age 10-18) are slightly different from younger children and adults.

They are much more likely to be night owls and so are not tired until later at night and, so in order to get enough sleep, wake up later in the day. Having to get up early for school disrupts this rhythm so they do not get enough sleep.

The Teensleep study

Researchers at The University of Oxford have designed a study to test the hypothesis that starting the school day later for GCSE students will improve their exam results.

Your task

You are going to design a method for the study.

1. Work in a group of 2-4.
2. To help you design the study, look through the examples of methods used for a similar study (page 2). Discuss in your group what is good and what is bad about each method.
3. Write your own study to test the Teensleep hypothesis.

http://www.oxfordsparks.ox.ac.uk/what-makes-you-tick
Key Stage 4
Teensleep study

Scientists want to find out if a new diet helps people to lose weight.

**Method A** Ask a person to use the diet for a month. Measure their mass before and after. See if they lose weight.

- ✓
- X

**Method B** Recruit 100 volunteers. Give the women the diet and ask the men to eat what they normally would. Measure their mass before and after the diet.

- ✓
- X

**Method C** Recruit 10 volunteers that want to lose weight. Create two groups of 5 that have people with different masses, jobs, ages and genders. One group goes on the diet and the other continues as normal. Ask them to keep a daily diary of what they ate, how active they were and their mass. Collect in the data and analyse it.

- ✓

**Method D** Recruit at least 500 volunteers which all have roughly the same mass, and are the same gender and age. Randomly assign each to a group; one who uses the diet and one that do not use the diet. Tell them not to do any exercise. Measure their mass before and after.

- ✓
- X

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