Let's Go: A study of the circadian rhythm of a mouse

Subject/grade level: Seventh Grade Science

Materials: mouse, rodent exercise wheel, electronic bicycle speedometer

Standards:

MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

Lesson Objective(s):

To study how environmental factors can change the activity level or circadian rhythm of a pet mouse.

Engagement:

Draw a diagram of the circadian rhythm of a human.

Students should think about the answer to this question: Since a mouse is nocturnal, how will the circadian rhythm of a mouse differ from a human?

Exploration:

Setup an electric speedometer attached the mouse's exercise wheel. Record the activity pattern for the mouse under normal conditions. Vary the light and dark patterns over the course of a three-week period. Record the activity levels daily.

Explanation:

How does the light and dark patterns affect the nocturnal activity cycle of the mouse? How long does it take for the mouse to change its activity level?

When you return your mouse to its “normal schedule” how long does it take your mouse to return to its normal baseline activity level?

Elaboration:

Students should answer the following questions:
Research the circadian rhythms of other animals and compare to the mouse.

Evaluation:

Students should answer:
What is a circadian rhythm?
What kind of circadian rhythm does a nocturnal animal have?