

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

Reading HW

HW Wk \_\_\_\_\_

*Directions: Read and annotate the passage below. Then answer the questions.*

### City Life Turns Blackbirds into Early Birds

In a new study, researchers have discovered that birds that live in the city have faster-paced lives compared to birds from the forests, just like people in urban areas compared to people in the country. The reason, researchers report, is that urban noise and light have altered the city birds' biological clocks instead of a behavioral response to cities. These findings also help explain why urban songbirds adopt more nocturnal lifestyles.

For the study, researchers set up an experiment with European blackbirds. The scientists attached tiny radio transmitters to blackbirds living in the city of Munich, Germany, as well as to those living in a nearby forest. The transmitters monitored the birds' activity for three weeks. Researchers found that forest birds started their activity at dawn but city birds began 29 minutes earlier, on average, and remained active for 6 minutes longer in the evening.

To prove the differences were due to physiological (bodily) changes and not behavioral changes, researchers collected blackbirds from both locations and placed them into light-proof and sound-proof enclosures. For ten days these enclosures were illuminated with a constant, dim light so the birds had no idea what time of day it was, and their activity patterns were monitored. The researchers found that the city birds in the enclosures had faster biological clocks than forest birds. It took the city birds an average of 50 minutes less to go through a full 24-hour cycle of activity than it took forest birds. And without the external cues of dawn and dusk, the urban birds' behavioral rhythms weakened rapidly, with their periods of activity and rest becoming more irregular than those of the forest birds.

Having such weakly set biological clocks could be a boon for the blackbirds. It could make them better at coping with city environments that are not as predictable as the wilderness. However such clocks could also potentially have harmful health effects. If these city birds are not making up for their awake time by napping during the day or sleeping more deeply at night, lack of sleep could reduce their brains' abilities or shorten their life spans.

Still to be determined, is whether humans who live in cities also have altered biological rhythms. That is a question scientists hope to address in future research.

- (RST.9-10.2) The main idea of the passage is that:
  - Urban birds have shorter life spans than those of birds living in forests.
  - Humans are better adapted for urban lifestyles than rural lifestyles.
  - Urban birds have faster biological clocks than birds living in forests.
  - Urban birds move faster than birds living in forests.
- (RST.9-10.1) According to the passage, how many more minutes in total, are city birds active compared to forest birds?
  - 6 minutes
  - 23 minutes
  - 29 minutes
  - 35 minutes

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3. (RST.9-10.1) It can be inferred that all of the following are factors that affect the behavioral rhythms of urban birds EXCEPT:
- a. Constant, dim lighting
  - b. Lack of dawn or dusk stimuli
  - c. Sounds of native insects
  - d. Sounds of cars and trains
4. (RST.9-10.4) As it is used in the passage, the term *boon* has the same meaning as:
- a. Curse
  - b. Harm
  - c. Benefit
  - d. Loss
5. (RST.9-10.1) Why did the researchers place the city and forest birds in sound-proof and light-proof enclosures?

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6. (RST.9-10.1) Explain why changing biological clocks can be both beneficial and harmful to birds.

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*Adapted from the article, "City Life Turns Blackbirds into Early Birds" by Matt Kaplan for Nature, reproduced by Scientific American on June 5, 2013.*

