

## Check your understanding



**1** Why do we study naked mole-rats to better understand aging?

*Answer* [ Naked mole-rats live longer than other rodents, don't show physiological changes with age, and are resistant to age-related diseases. ]

**2** What happens to DNA when mammals age?

*Answer* [ The amount of DNA methylation changes. DNA methylation is when a methyl group is added (and sometimes removed) at certain places on the DNA. ]

**3** We identified two areas about naked mole-rats and aging that will require more research. Which area do you think we should research next? Explain your choice.

*Answer* [ Answers will vary. Students should identify one of the areas that require more research stated in the article. We stated that more research is needed to understand why physical and molecular aging don't match in naked mole-rats. We also stated that more research is needed to understand the connection between lifestyle and aging. Students should support their answer with reasoning. ]

**4** With a partner or small group, brainstorm how better understanding aging in naked mole-rats affects humans in the future.

*Answer* [ Better understanding aging in naked mole-rats could help scientists figure out how to prevent age-related diseases in humans. That means that humans could potentially expand their healthspan, as well as their lifespan. ]

**5** Research age-related diseases that affect humans. Select one and describe how it impacts a person. Share your research with your classmates.

*Answer* [ Some age-related diseases include cancer, cardiovascular disease, strokes, osteoporosis, dementia, Type 2 diabetes, Parkinson's disease, and chronic obstructive pulmonary disease. Some ways that students can share the information include a slide presentation, one page infographic, or oral presentation. ]

Why do you think the scientists created epigenetic clocks for blood, liver, kidney, and skin tissues, but not the other tissues?

*Answer* [ There were more DNA samples from these tissues than the other types. ]