



Celebrate  
Groundhog Day  
with  
Science

## Life Science

Investigate animal behavior and adaptations.

## Earth Science

Analyze the effects of weather and climate change on animals in their habitats.

## Physical Science

Graph data based on the movement of objects.



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# Celebrate Groundhog Day with Life Science

## Life Science: Investigate Animal Behavior and Adaptations

Groundhogs are large rodents that you may have spotted in your neighborhood or even in your backyard, but you may be most familiar with them because of Punxsutawney Phil. In 1887 a town in Pennsylvania began a tradition in which their local celebrity groundhog, Punxsutawney Phil, famously predicts the remaining length of winter on February 2nd each year. This prediction is dependent on the observation of his behavior and his shadow. If Phil sees his shadow, he will return to his burrow, which signifies six more weeks of winter. If he doesn't see his shadow, he won't return and this predicts an early spring. All this talk about groundhogs inspired us to take a closer look at these round rodents!

1. Like other burrowing mammals, groundhogs have many unique adaptations. Research and describe three adaptations that make them better suited for their habitat.

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2. What other types of animals have similar adaptations to a groundhog? Provide three examples and choose one to research. Describe two similar adaptations that they share and two different adaptations or characteristics unique to each one.

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3. Groundhogs and other burrowing mammals hibernate. Define hibernation and describe three ways groundhogs and other similar animals prepare for hibernation.

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4. Why is hibernation beneficial for these animals? \_\_\_\_\_

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# Celebrate Groundhog Day with Earth Science

Earth Science: Analyze Effects of Climate Change on Animals in their Habitats

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Did you know that the behavior of many animals is dependent upon the climate in their environment? It can determine how much and what type of food sources are available and also have a major role in evolutionary processes. Groundhogs and other marmots burrow into the ground to seek shelter, stay safe from predators, and hibernate. As global temperatures rise, these organisms may start relocating to colder regions, which can change their food sources and hibernating conditions. Research these unique animals and answer the questions below.

1. Describe the difference between weather and climate. \_\_\_\_\_

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2. Describe how climate change occurs. \_\_\_\_\_

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3. Describe three threats of climate change that may risk the lives of burrowing and hibernating animals.

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4. If groundhogs are negatively impacted by climate change, how can this affect their entire ecosystem?

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# Celebrate Groundhog Day with Physical Science

## Physical Science: Graph Data Based on the and Movement of Objects

In 1887 a town in Pennsylvania began a tradition in which their local celebrity groundhog, Punxsutawney Phil, famously predicts the remaining length of winter on February 2nd each year. This prediction is dependent on the observation of his behavior and his shadow. If Phil sees his shadow, he will return to his burrow, which signifies six more weeks of winter. If he doesn't see his shadow, he won't return and this predicts an early spring. All this talk about groundhogs inspired us to take a closer look at these round rodents! Complete the graphing activity below based on Phil's motion.

On a bright, sunny February 2nd day, Punxsutawney Phil sleepily emerges from his burrow. He explores the meadow where he lives until he sees his shadow. Because he was so startled, he can't find his way back and has to run to his neighbor's burrow. Create a distance-time graph using the data in Table 1 to represent his movement and answer the corresponding questions.

**Table 1**

<b>Time Elapsed (Seconds)</b>	<b>Distance from Burrow (Feet)</b>
30	20
60	70
90	140
120	210
150	280
180	350
210	350
240	790
270	1230
300	1600

1. At what point(s) does Phil have a steady pace? How can you tell?

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2. At what point(s) is Phil not moving? How can you tell?

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3. At what point do you think Phil saw his shadow? Why? \_\_\_\_\_

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4. Estimate the pace at which groundhogs walk. What information did you use to make this estimate?

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5. Convert this pace to miles per hour: \_\_\_\_\_

6. Estimate the pace at which groundhogs run. What information did you use to make this estimate?

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7. Convert this pace to miles per hour: \_\_\_\_\_