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Unit 3, Lesson 12

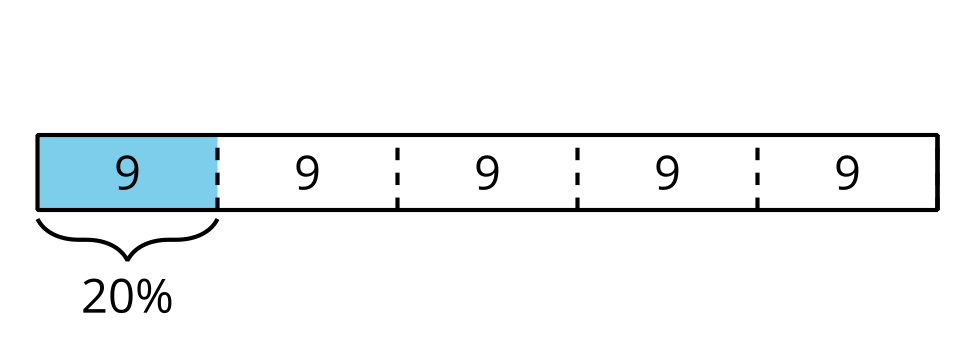
# Representing Percentages in Different Ways

Let's use tape diagrams to understand percentages.

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## 12.1Notice and Wonder: Tape Diagram

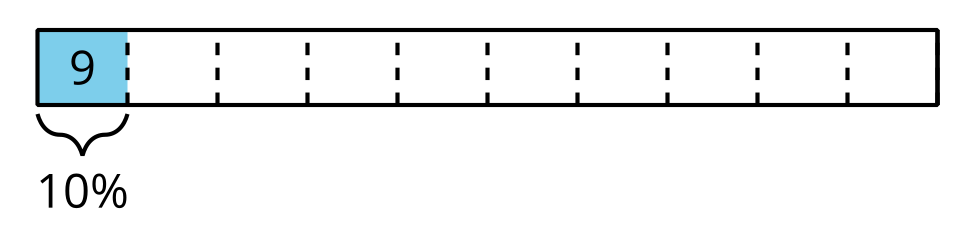
What do you notice? What do you wonder?



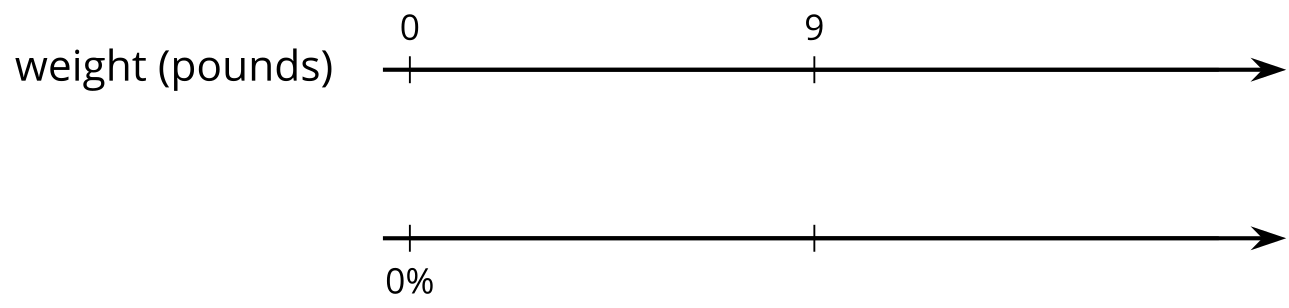
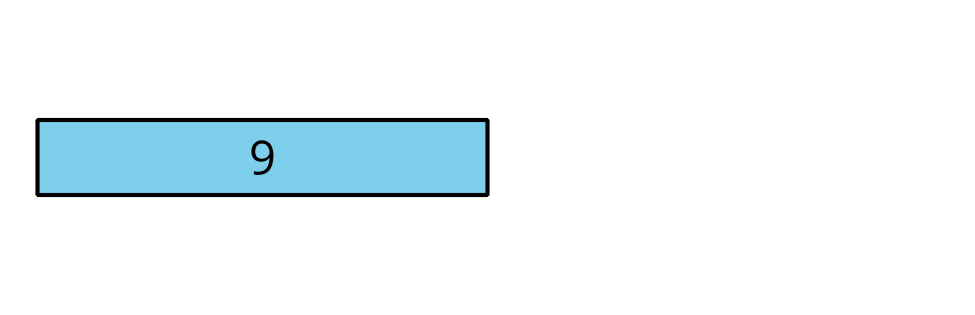
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## 12.2Revisiting Jada's Puppy

Jada has a new puppy that weighs 9 pounds.

1. The weight of Jada’s puppy is 10% of the weight of another dog.
   1. What does 100% represent in this situation?
   2. What is the weight of the other dog? Explain or show your reasoning.
   * You can use the tape diagram or the table if you find either one helpful.
   * 

| * + weight (pounds) | * + percentage |
| --- | --- |
| * + 9 | * + 10 |
|  |  |
|  |  |

1. A bunny weighs 150% as much as Jada’s puppy.
   1. What does 100% represent in this situation?
   2. What is the weight of the bunny? Explain or show your reasoning.
   * You can use the double number line diagram, tape diagram, or table if you find one of them helpful.
   * 
   * 

| * + weight (pounds) | * + percentage |
| --- | --- |
| * + 9 |  |
|  |  |
|  |  |
|  |  |

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## 12.3Staying Hydrated

For each situation, answer the questions and show your reasoning.

1. Noah drank 5 cups of water while at school. Diego drank 120% as much as Noah did. How much water did Diego drink?
2. During the first part of a hike, Kiran drank 1.5 liters of the water he brought.
   1. If this is 50% of the water he brought, how much water did he bring?
   2. If he drank 80% of his water on his entire hike, how much water did he drink?

### Are you ready for more?

Decide if each of Kiran’s plans is possible. Explain your reasoning.

1. By the end of this hike, Kiran plans to drink 150% of the water he brought.
2. Kiran plans to bring his dog on his next hike, along with 150% as much water as he brought on this hike.

## Lesson 12 Summary

Tables and tape diagrams can also help us make sense of percentages.

Consider two problems that we solved earlier using a double number line diagram:

* What is 30% of 50 pounds? Here is a tape diagram that shows that 30% of 50 pounds is 15 pounds.
* 
* Mai spent 90 minutes reading on Monday. This is 125% as much time she spent reading on Sunday. How long did she read on Sunday?
* In other words: If 90 is 125% of a number, what is 100% of that number? A table can help us reason about problems like this.
* Here is one that shows that 100% of that number must be 72.
* 