

Furiously Fast Falcons

You won't win this race!

Summary:

Peregrine falcons are the fastest animals on earth! Calculate your own top speed and compare it to falcons and other animals.

Guiding Questions:

How fast do you think this animal is?

What features do you think help this animal move fast?

Why do you think this animal needs to be fast?

If you were as fast as this animal, how would you use your speed?

Experience Goals:

- Discover how fast different animals are and how they use their speed.
- Go for a fast run and calculate your speed.
- Compare your speed to the top speeds of various animals.

Supplies:

- Tape measure
- Chalk or tape to mark a start and finish line
- A place you can run 100 feet safely
- Stopwatch or other digital timer (phone)
- Calculator
- Find Your Speed Activity Sheet (page 5)
- Animal Speeds Info Sheet (page 6)

Steps:

1. Find out your speed!
 - a. Go outdoors to a place where you will have room to run 100 feet safely. 100 feet is about as long as 3 school buses.
 - b. Mark off 100 feet using a tape measure. If your tape measure is shorter than 100 feet, mark where it ends and then keep measuring until you get to 100 feet.
 - c. Use chalk or tape to mark a starting line and a finish line at the end of 100 feet.
 - d. Put your foot on the starting line. When you start the timer, run as fast as you can to the finish. As you cross the finish line, stop the timer.
 - e. Record your time. Enter your time into the Find Your Speed Activity Sheet (page 5).
 - f. Calculate your speed in miles per hour using the Find your Speed Activity Sheet (page 5).

2. Compare your speed to the top speed of different animals.
 - a. Before you check out the Animal Speeds Info Sheet on page 6, try to guess what animals your speed might compare to. Who are you faster than? Which animals do you think are the fastest on earth? In the air? In the water?
 - b. Check out the Animal Speeds Info Sheet to see how fast different creatures are.
 - c. Were you surprised by any of the animals? Who is your speed closest to?
 - d. Let's imagine each animal covering the 100 foot distance you just ran. Stand at the starting line and start the timer. Stop it after the amount of time listed for each animal's speed on the Animal Speeds Info Sheet. Are you surprised by how fast or slow certain animals are?

e. Demonstrate the speed of the slower animals by walking 100 feet in their listed times. Then challenge the faster animals. How far can you run in their time frames?

3. Find out more about Peregrine Falcon speeds.

a. Peregrine Falcons are the fastest animals on earth! While flying straight ahead (level flight), they can reach a modest 60 mph. However, during their spectacular dive to catch prey mid-air, they can reach a spine-tingling 240 mph!

b. Explore Peregrine Falcons' need for speed by discussing the guiding questions on page 1. One of the falcons' favorite prey animals in cities are pigeons. Why would the falcons need to reach over 240 mph to catch pigeons?

c. Imagine diving at 240 mph! To put this speed into context, at 240 mph you could go from the Willis (Sears) Tower to the Field Museum in 23 seconds, or fly straight across the lake from the Field Museum to the Michigan shore in about 15 minutes!

d. Look up the distance between other sites in and around Chicago or your home, and find how long it would take you to fly from one place to the other as fast as a 240 mph falcon dive!

e. One example of a website for calculating time given speed and distance is:

<https://www.calculatorsoup.com/calculators/math/speed-distance-time-calculator.php>

Extensions:

- Throw a ball as hard as you can from your 100-foot run starting line. Have another person time how long it takes the ball to get to the finish line (bouncing and rolling count!). Calculate the speed of your throw. How does it compare to a falcon? The fastest Major League Baseball pitch ever recorded is 105 mph. That's only about half as fast as a falcon diving! Imagine how that speed helps a falcon catch its prey.
- Challenge your family or friends to guess the speeds of different animals. Print out the animal speeds fact sheet, cut out the pictures, and fold over each card so that the speed does not show. See if they can place them in order from slowest to fastest!
- Go outside and look for birds. See if you can spot any hawks, or maybe even a falcon, soaring high overhead. Why do you think these birds would fly so high up in the sky when their prey is often far below them?
- Learn more about Illinois' peregrine falcons on the Field Museum website: <https://www.fieldmuseum.org/science/specialprojects/illinois-peregrines>

Find Your Speed Activity Sheet

Step 1: Take the time you got for running 100 feet, round it to the nearest second and record it in Step 1 of the chart below.

Step 2: Figure out your speed in feet per second. This will be your distance divided by your time. Start with the number 100, since that is how far you ran (your distance). Divide 100 by the number of seconds it took you to run (from Step 1). This is your speed in feet per second. For example, if you ran 100 feet in 10 seconds, your speed would be 100 divided by 10, which is 10 feet per second.

Step 3: Figure out your speed in miles per hour. Find a calculator or use the Conversion Chart below (in the chart we round to the nearest whole number). In this step, record your speed in feet per second, and multiply it by .6818. That will give you your speed in miles per hour. For example, if your speed is 10 feet per second, then $10 \times .6818$ would give you 6.818 miles per hour, or rounded up, 7 miles per hour.

Step 1: My running time for 100 feet: _____

Step 2: 100 divided by _____ seconds = _____ ft/sec

Step 3: _____ ft/sec times .6818 = _____ miles/hour

Conversion Chart: Feet per second to miles per hour

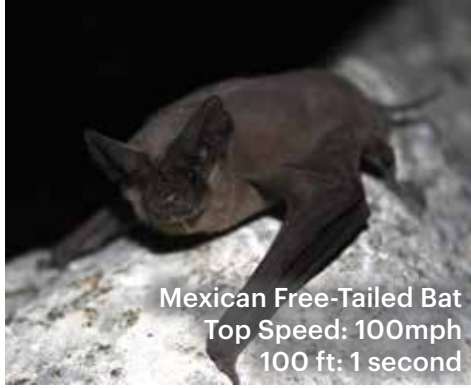
ft/sec	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
mph	1	1	2	3	3	4	5	5	6	7	8	8	9	10	10	11	12	12	13	14	14	15	16	16

Animal Speeds Info Sheet



Stephanie Ware

Peregrine Falcon
Top Speed: 240mph
100 ft: less than 1 second



USFWS Headquarters

Mexican Free-Tailed Bat
Top Speed: 100mph
100 ft: 1 second



Stephanie Ware

Rock Dove (pigeon)
Top Speed: 92mph
100ft: 1 second



Listoid.com

Black Marlin
Top Speed: 80 mph
100 ft: 1 second



Hein Waschefort

Cheetah
Top Speed: 70 mph
100 ft: 1 second



© Rebecca Banaziak

Cottontail Rabbit
Top Speed: 30 mph
100 ft: 2 seconds



Erik van Leeuwen

Usain Bolt (human)
Top Speed: 27 mph
100 ft: 3 seconds



Alan Resetar

Frisled Lizard
Top Speed: 16 mph
100 ft: 4 seconds



© Rebecca Banaziak

Grey Squirrel
Top Speed: 12 mph
100 ft: 6 seconds



USFWS

Striped Skunk
Top Speed: 10 mph
100 ft: 7 seconds



Cody Pope

Opossum
Top Speed: 7 mph
100 ft: 10 seconds



Davidvraju

Softshell Turtle
Top Speed: 3 mph (land)
100 ft: 23 seconds

Image Credits

Reptiles

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Frilled Lizard photo by Alan Resetar (Field Museum)

Birds

City Pigeons by Stephanie Ware (Field Museum)

Peregrine Falcon by Stephanie Ware (Field Museum)

Mammals

Eastern Cottontail Rabbit *Sylvilagus floridanus*

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Eastern grey squirrel, *Sciurus carolinensis*

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Fish

Black Marlin <http://www.listoid.com/list/62>