



SeaWorld/Busch Gardens Physics

4-8 Classroom Activities

Animal Speedsters

OBJECTIVE

Students will identify how fast they can run in miles per hour. The student will correlate their speed to other animal speeds.

ACTION

1. One of the most commonly asked questions at a zoological facility is: How fast do various animals run? In this activity students will have an opportunity to calculate how fast they run and correlate it to certain animals' speeds.
2. Lead the class to the gymnasium or track. Measure a straight distance that is about 50 feet long (15 m). Place markers (cones) at the starting and stopping points. Divide the class into groups of two.
3. Instruct the student groups to have one partner at the starting line and the other at the finish line. The student at the finish line (known as the timer) will have a stopwatch or a watch with a second hand to keep time. The timer begins the sprint by saying "Ready, Set, Go" and records the running time in seconds as his or her partner crosses the finish line.
4. Instruct the student groups to switch positions and time the sprint for the other partner.
5. Return to the classroom and introduce the equation $\text{Distance} = \text{Rate} \times \text{Time}$. Explain that this is the equation they will use to calculate how fast they ran the 50 feet. The students must get their answer in miles per hour to compare to the animal chart.

Example Problem: $D = 50$ feet $T = 25$ seconds $R = ?$

$$D = R \times T \quad R = D/T \quad R = 50 \text{ feet}/25 \text{ seconds} \quad R = 2 \text{ feet/second}$$

Now convert feet per second into miles per hour. Multiply 2 feet/second by 3600 seconds in an hour to get 7200 feet/hour. Then divide 7200 feet/hour by 5280 feet in a mile to get 1.36 miles/hour or 1.36 mph.

In a shorter version, divide 3600 by 5280 to get a constant of 0.68. Multiply 2 feet/sec by 0.68 to get 1.36 miles/hour.

6. Copy the animal chart onto a dry erase board or chalkboard. Instruct the students to place a mark on the chart where their speed correlates. Once all students have filled in their marks, review the findings. What animals were faster and which were

DEEPER DEPTHS

While humans are able to claim many unique abilities, humans are one of the slowest animals on Earth! Miles per hour is the unit of measure devoted to calculating speed. It is defined by:

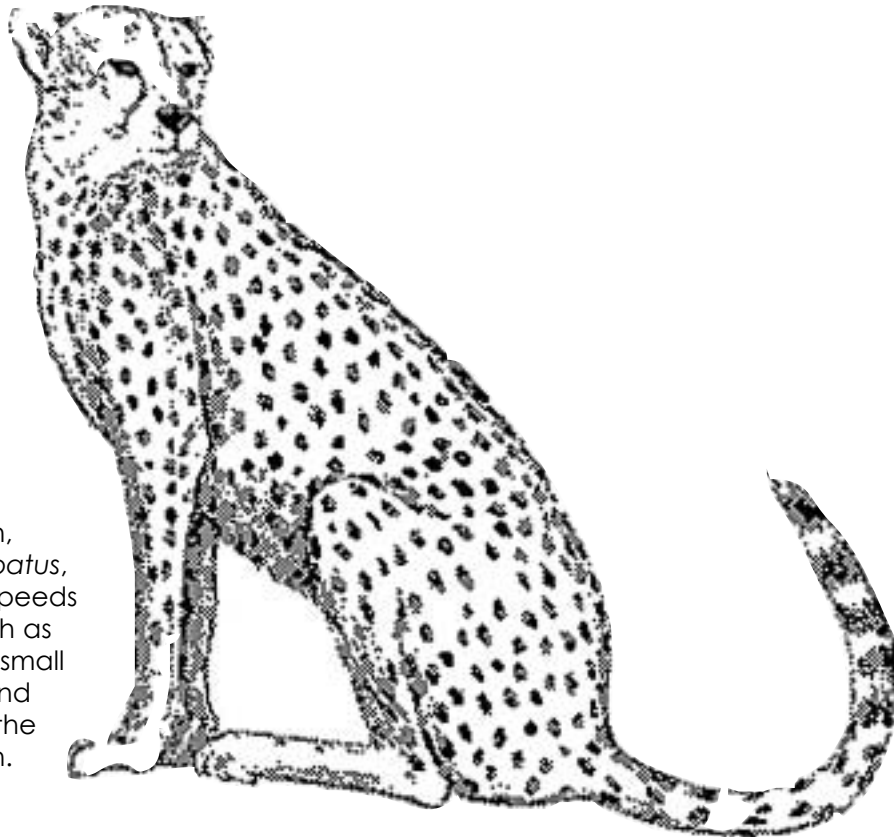
Distance = Rate x Time.

MATERIALS

Per class:

- stopwatches or watches with second hands (per student group)
- tape measure
- two medium sized cones
- animal chart
- gym or track area large enough for students to run 50 (15 m)

The cheetah, *Acinonyx jubatus*, can reach speeds up to 70 mph as they pursue small antelopes and gazelles on the African plain.





peregrine falcon 200+mph

cheetah 70 mph

swan 56 mph

rabbit 35 mph

killer whale 34 mph

penguin 25 mph

elephant 25 mph

turkey 23 mph

chicken 9 mph

garden snail .03 mph

bumblebee 6 mph

