Avian Olympics

Student

Directions

Answer the following questions one at a time. Do not proceed to the next question until your teacher has given the class the direction to do so. Show all calculations.
(Hint for math problems: carry the units through calculations and that will help you see if your answer makes sense.)

1. a. Names of students in group:

b. Choose a mascot migratory shorebird for your group name:_____

2. a. The average middle school student's weight is 100 lbs or 45 kg. How many grams are there in 45 kg?

b. Compare the above weight to the weight of the Western Sandpiper which weighs about 25 grams (less than 1 oz). Find an object in the classroom that you think weighs 25 grams. Do this by hypothesizing, not by actually weighing it. What object did you select? Now weigh the objects and record what object came closest.

c. How many Western Sandpipers (at 25 grams) would it take to equal the weight of an average middle school student (at 45 kg)

3. a. What's the largest number of quarter-pound hamburgers any student has ever eaten in a single meal?

b. What percentage of the average weight of a middle school student is this? (Assume that a quarter-pound hamburger = 114 grams.)

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3. c. Compare this with the Golden Plover, which gains enough fat to increase its body weight by almost 30% for its migration from Hawaii to Alaska. If an average student weighing 45 kg were going to increase his/her body weight by 30%, how much weight would s/he gain?

d. How many quarter-pound hamburgers does this equal?

4. a. How long did it take the fastest student to sprint 50 meters?

b. Calculate how long it would take this runner to cover 1 kilometer.

c. Using a map of the world, estimate the distance in kilometers from your school to Lima, Peru. Using your answer from "b" above, calculate how long it would take the fastest student to sprint directly to Lima. (Assume s/he could run in a straight line without stopping.)

d. Compare these results with Sanderlings, which are able to migrate 7,500 km (4,650 miles) between Oregon and Peru in 230 hours, or about 10 days.

5. a. How many arm flaps can your group's representative do in 10 seconds?

b. Using the time calculated in "4c" above, calculate how many arm flaps a student would make in a "flight" to Lima, Peru.

Student

6. a. Which group member can continue flapping his/her arms the longest? How long?

b. How far do you think the best runner of middle school age can run without stopping? How far do you think the average middle school student can run without stopping?

c. How does this compare with some plovers, curlews, and tattlers which fly non-stop from Hawaii and other Pacific Islands to Alaska, a distance of over 3,500 miles? The little Western Sandpiper flies over 250 miles per day between stop-over points along the Pacific coast flyway to Alaska.

7. a. Which group member has lived the farthest away from his/her current home? How many kilometers away is that?

b. How does this compare with Sanderlings that fly over 11,000 km twice a year from their high-Arctic breeding grounds to wintering grounds in Peru?

8. a. Humans burn about 60 calories by running one kilometer. At this rate, how many calories would you need to run from here to Peru?

b. If one gram of fat yields 9 calories, how many kilograms of fat would you need to eat before making the trip?

c. How does this compare with the Golden Plover, which can travel 3,900 kilometers (2,400 miles) in 48 continuous hours of flying using less than 60 grams (2.1 oz) of body fat?