

### **Resources Needed:**

- Each student should have access to a piece of paper and writing tool
- Projector or some manner to display images
- A timing device for measuring a 20 second interval

### **Setting the Context**

**Facilitator says:** “The performance task you will complete allows you to explore the body weights and pulse rates of different animals.”

**Facilitator says:** “Let’s start by talking about the body weights of different animals. Imagine a chicken, a dog, a horse, and a rat. On your paper, write the animals in order from lightest to heaviest according to their body weights. [Display the animals’ names for students in the order listed: chicken, dog, horse, rat.]

**Facilitator asks:** “Which two animals do you think are closest in weight?” [Wait for responses. Responses may include the rat and the chicken, or some students may think the dog and the horse depending on which breeds they are considering or because they have never seen the live animals. Students may explain why they made the choice they did.]

**Facilitator asks:** “How did you order the animals from lightest to heaviest?” [Record the orders that students provide, writing down different responses if they arise.]

**Facilitator says:** “Based on the average body weight, the order from lightest to heaviest is rat, chicken, dog, horse.”

### **Modeling a Process**

**Facilitator says:** “Next, we are going to think about pulse rate. This is the rate at which your heart beats. It is often measured in beats per minute. Today, you are going to find your pulse on your neck or your wrist. Using your middle and index fingers, gently touch your wrist to find the pulse beating. Do not use your thumb to take the pulse because it has a pulse of its own.” [Display the image on the resource documents showing how to take a pulse via wrist.]

**Facilitator says:** “Everyone try to find your pulse. Raise your free hand once you have found it.” [Help students find their pulse on the wrist, or show them another method for finding pulse.]

**Facilitator says:** “We are going to count the number of beats in 20 seconds. If you were not able to find your pulse, keep trying. You will not be graded on whether you found your pulse. When I say begin, start counting the number of beats. When I say stop, stop counting.” [Wait for an appropriate starting point.]

**Facilitator says:** “Begin.” [20 seconds pass.] “Stop.”

**Facilitator says:** “How many pulse beats did you count in 20 seconds?” [Collect and record different student responses.] “Notice that not everyone has exactly the same pulse rate. There are many factors that can affect pulse rate, such as age, body temperature, or exercise.”

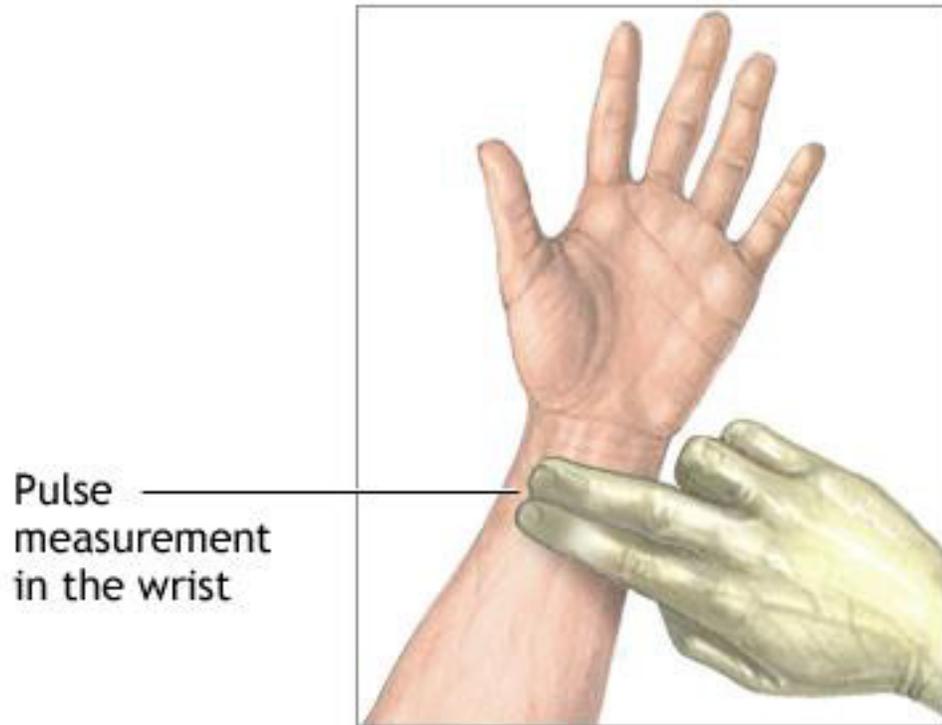
**Facilitator says:** “Earlier, I told you that pulse rate is often measured in beats per minute. What do you think we should do to the pulse rate we found to convert it to beats per minute?” [Students may have different responses based on their background in ratio and proportion. One possible solution is to multiply the rate by 3 since one minute is equal to 3 x 20 seconds, so this is the same as performing the counting exercise for three 20 second intervals, or one minute.] “Try converting your pulse rate to beats per minute.” [Ask for four or five conversions.]

**Facilitator says:** “Let’s list some pulse rates in the class. [Five pulse rates from students are displayed.] Even though there is a range of pulse rates, we can find the *average* pulse rate to represent the group. How can we find the average pulse rate?” [Students calculate the average and report out.]

Facilitator says: “Now that we have talked about average pulse rate and body weight, you are ready to complete the task.”

You may now begin the **Performance Task**.

## Ancillary Materials



 ADAM.

### Source Documents

Source: <http://www.nlm.nih.gov/medlineplus/ency/imagepages/9799.htm>