

Human Anatomy & Physiology I

Lab 3 Scientific method – What is the best predictor of lung capacity?

Exercise 3.1

1. Write the final versions of the two most easily tested hypotheses in the boxes below. The third hypothesis is provided for you and will be elaborated on in a later section. You can use the third hypothesis as a model of how to phrase the first two hypotheses.

1st hypothesis:

2nd hypothesis:

3rd hypothesis:

The total surface area of individuals' bodies will correlate best with their total lung capacity and total body surface area will correlate better with total lung capacity than any other easily measured body characteristic.

Exercise 3.2

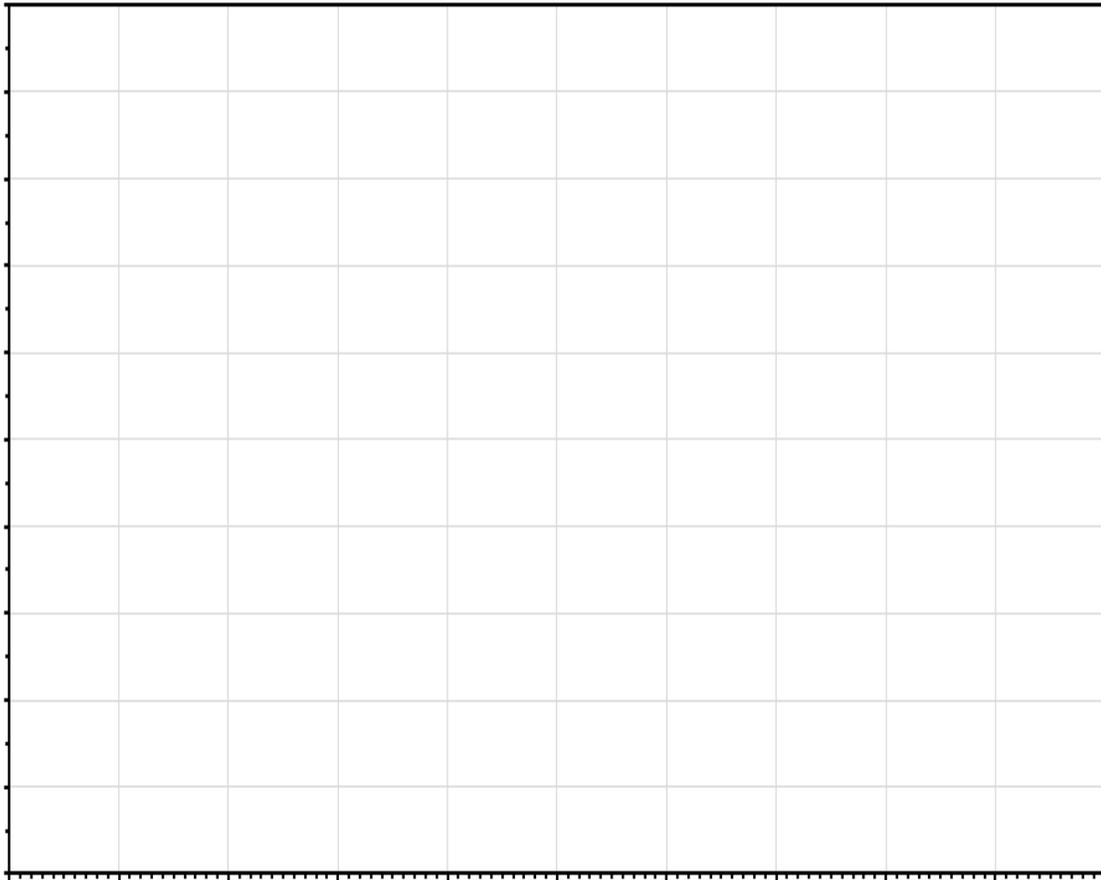
1. If two values correlate well, what will happen if you graph them?
2. What data will you collect to test your three hypotheses?
3. If any of the hypotheses correlating total lung capacity to something easily measured on individuals' bodies are correct, what can you predict about plots of those data sets?
4. If any of the hypotheses correlating total lung capacity to something easily measured on individuals' bodies are incorrect (false), what can you predict about plots of those data sets?

Exercise 3.3

Once the instructor has fused all the ideas into one protocol for everyone to follow, write down the steps here:

1. What you will measure.
2. What you will calculate
3. What you will graph
4. How you will decide whether to reject or accept each hypothesis

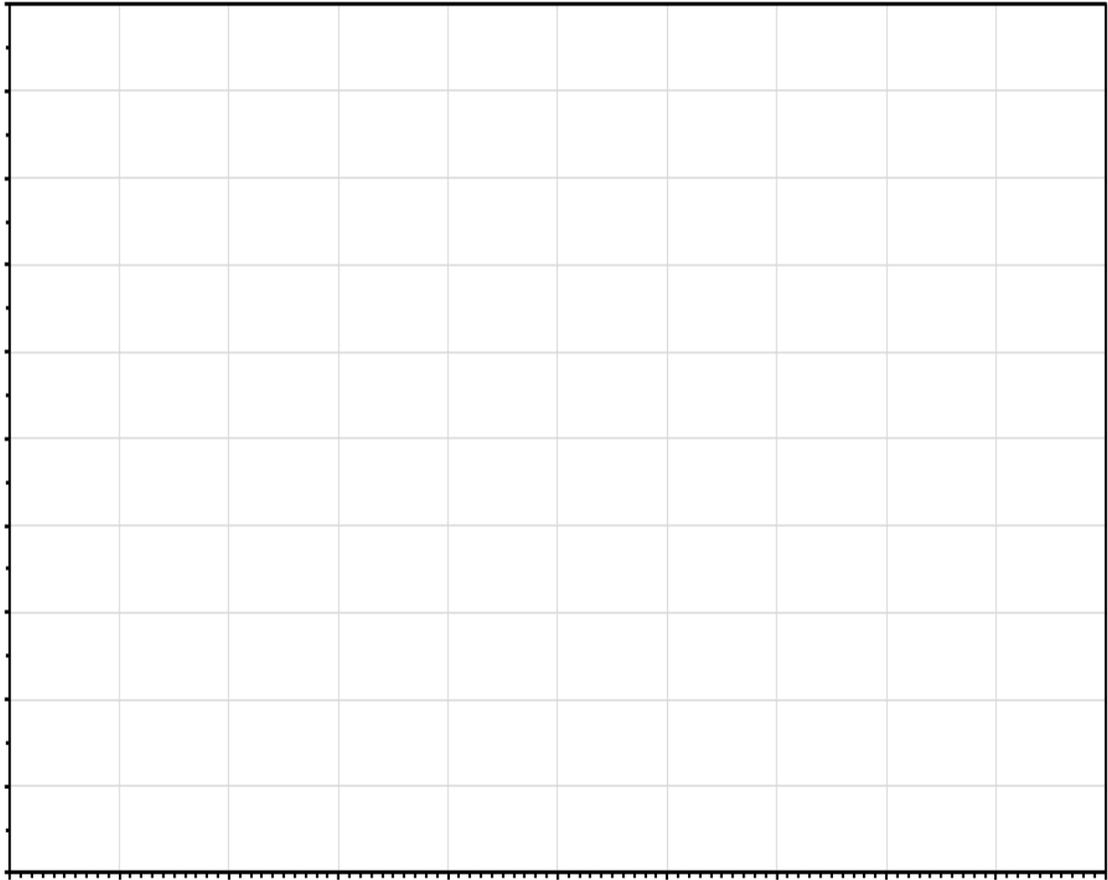
2. You have three hypotheses about which easily measured attribute best correlates with total lung capacity. In the three graphs below, plot the data set for each hypothesis. Under each graph, indicate whether the relationship provides evidence for accepting or rejecting the hypothesis.



Hypothesis 1:

Result:

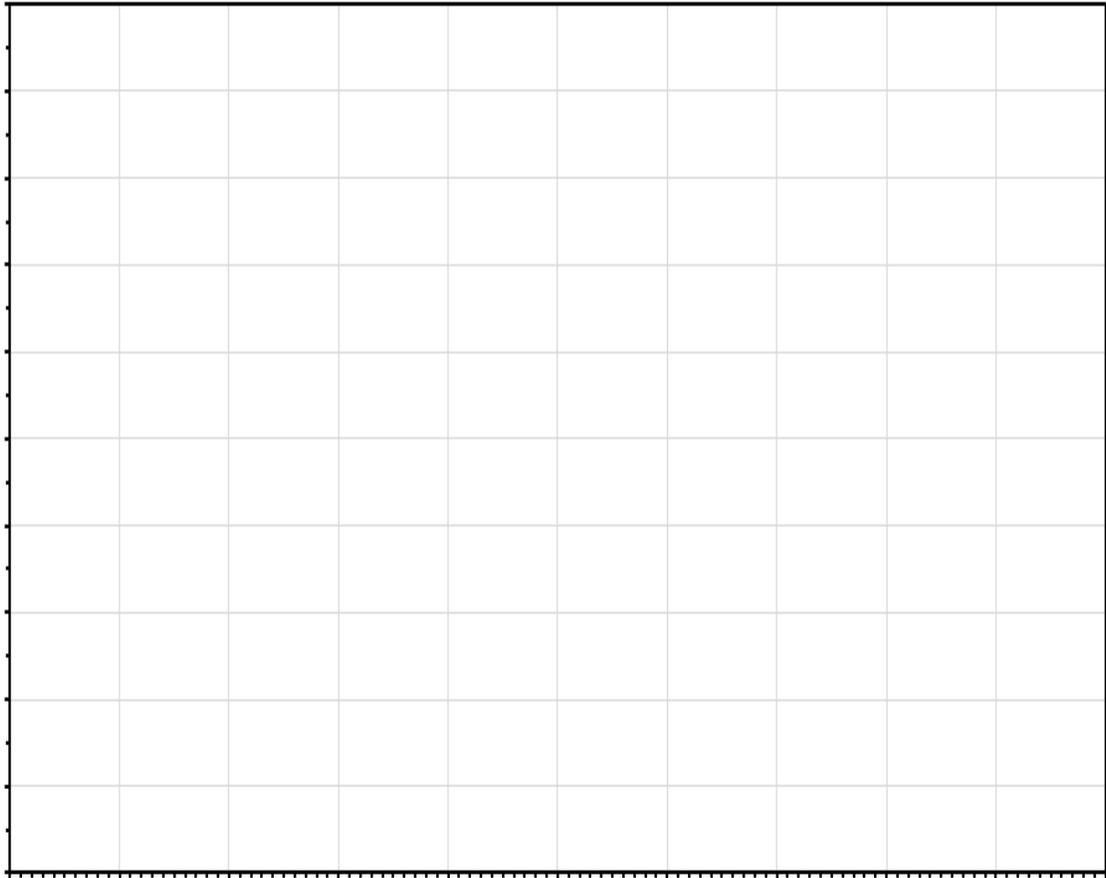
Accept or reject hypothesis? Why?



Hypothesis 2:

Result:

Accept or reject hypothesis? Why?



Hypothesis 3: The total surface area of individuals' bodies will correlate well with their total lung capacity and total body surface area will correlate better with total lung capacity than any other easily measured body characteristic.

Result:

Accept or reject hypothesis? Why?