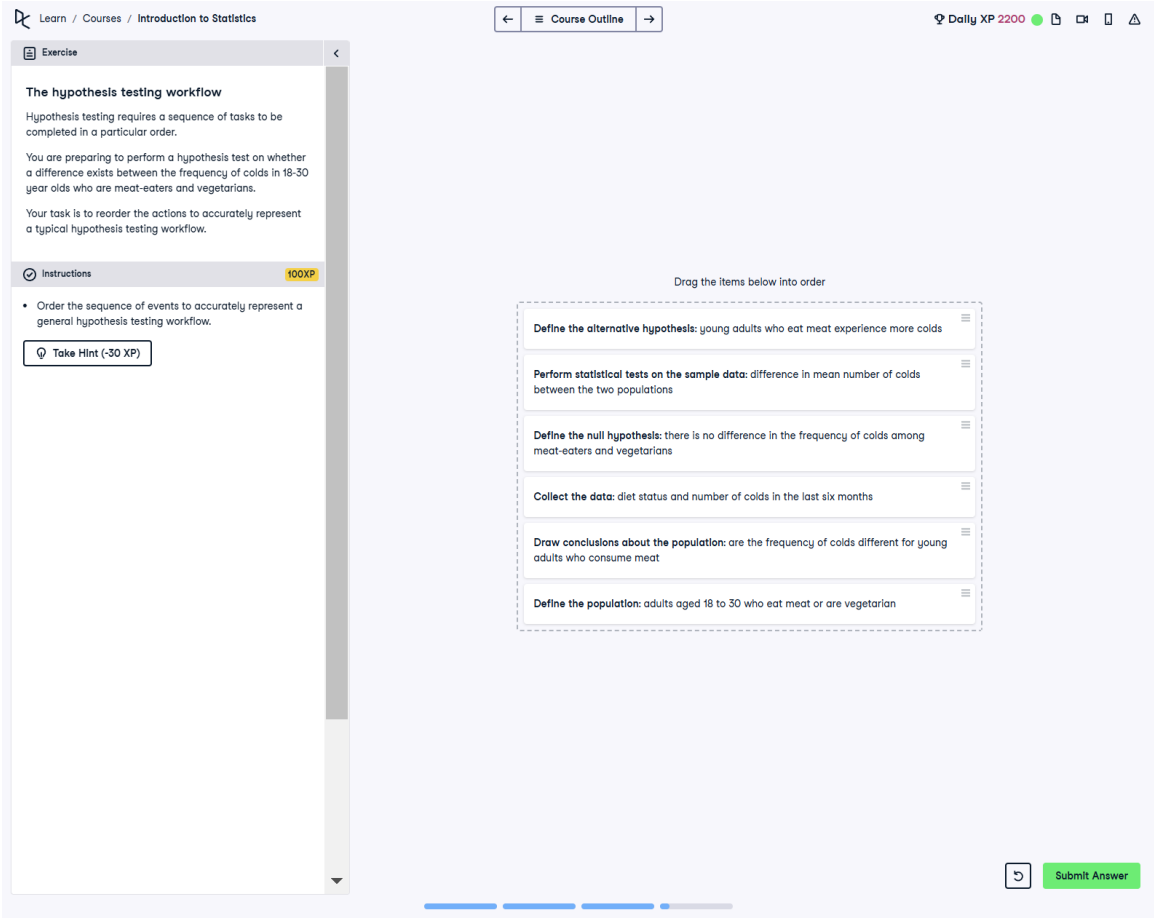
The Hypothesis Testing Workflow

Hypothesis testing requires a sequence of tasks to be completed in a particular order.

You are preparing to perform a hypothesis test on whether a difference exists between the frequency of colds in 18-30 year olds who are meat-eaters and vegetarians.

Your task is to reorder the actions to accurately represent a typical hypothesis testing workflow.



Answer

1. Define the population: adults aged 18 to 30 who eat meat or are vegetarian.
2. Define the null hypothesis: there is no difference in the frequency of colds among meat-eaters and vegetarians.
3. Define the alternative hypothesis: young adults who eat meat experience more colds.

4. Collect the data: diet status and number of colds in the last six months.
5. Perform statistical tests on the sample data: difference in mean number of colds between the two populations.
6. Draw conclusions about the population: are the frequency of colds different for young adults who consume meat?

Explanation of the Answer

To perform a hypothesis test, the steps must be followed in the correct sequence:

1. **Define the Population:** Specify the group being studied, such as adults aged 18-30 who are meat-eaters or vegetarians.
2. **Define the Null Hypothesis:** Assume no effect or no difference between the groups (e.g., no difference in colds frequency).
3. **Define the Alternative Hypothesis:** Propose the effect or difference being tested (e.g., meat-eaters experience more colds).
4. **Collect the Data:** Gather data related to the hypothesis, such as dietary status and number of colds.
5. **Perform Statistical Tests:** Analyze the sample data to test the null hypothesis (e.g., t-tests, ANOVA).
6. **Draw Conclusions:** Based on the test results, determine whether to reject or fail to reject the null hypothesis.

These steps ensure a logical and valid approach to hypothesis testing.