

Dynamic Design: The Clean Room

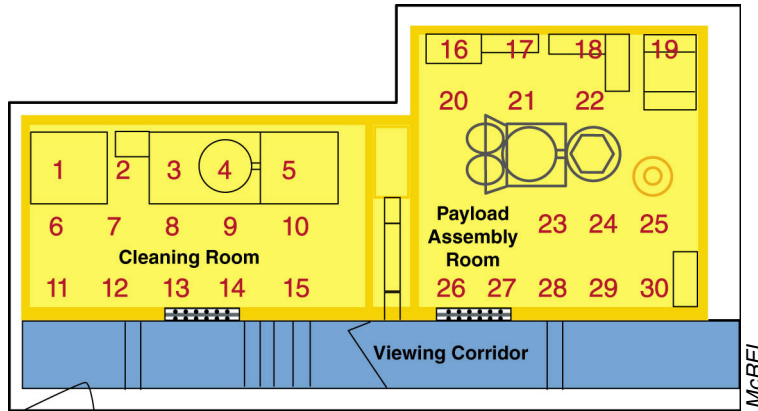
Keep It Clean

STUDENT ACTIVITY

PROCEDURE

1. Working in your small group, answer the following questions:
 - a) What is the purpose of a survey?
 - b) What is sampling?
 - c) Why is sampling necessary?
 - d) When taking a survey, how are participants chosen?
 - e) What are some examples of sampling that you have seen from everyday life?
2. Read the Student Text, "[Maintaining Clean](#)." List several questions about sampling techniques in general that your group has after reading the text.
3. In your own words, define the following: Convenient Sampling, Systematic Sampling, Random Sampling.

4. The diagram below is a floor plan of the cleanroom at NASA Johnson Space Center in Houston, Texas. In this activity we will be taking simulated air samples. The numbers on the image indicate the location in which the samples will be taken.



5. The population is all of the air in the cleanroom. The 30 film canisters represent 30 samples of air. In the space below, describe how you will obtain five canisters (representing air samples) using each method.

Convenient:

Systematic:

Random:

6. After your teacher has approved your methods in #5, proceed to take the samples. Record the numbers of our samples for each method in the data table below:

Sampling Method	Sample Number				
	1	2	3	4	5
Convenient					
Systematic					
Random					

7. Once you have your samples numbers identified, obtain the film canister containing the “sample air” from the simulated cleanroom. Your noses will act as air particle counters. Open the lid and sniff the contents of the film canister. Make a data table below and record your observations.

8. Answer the following questions based on your experience.

a) Based on your data, did you detect contamination? If so, with which method of sampling did you detect it?

b) If you were going to sample a population, which method would you choose and why?

c) Based on what you know about the air particle counter in the Genesis cleanroom, in what way(s) was this a good model and in what way(s) was this a poor model for simulating the air particle counter?