

Name: _____

Date: _____

What Should We Do?

Deciding between Experiments and Observational Studies

For each research question posted in column one below, decide which type of data collection method would be best, or would be most appropriate. Circle the appropriate method in column two. In column three, explain why you chose this method. Be sure to include why the other method would not be appropriate.

Research Question	Best Data Collection Method	Why This Method?
Do people who live alongside freeways suffer from asthma more than people who do not live near freeways?	Observational Study OR Experiment	
How does being alone or with others affect a person's stress or chill ratings?	Observational Study OR Experiment	
Are males or females more frequently late to class?	Observational Study OR Experiment	
What are the effects of nuclear radiation 48 hours after exposure?	Observational Study OR Experiment	
Are males who play violent video games more prone to engage in violent actions than males who play E-rated video games?	Observational Study OR Experiment	
Who speaks up more when you cut the line, adults or teenagers?	Observational Study OR Experiment	
What types of rockets and fuel mixtures get us closest to achieving the speed of light?	Observational Study OR Experiment	

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Answer Key

Research Question	Best Data Collection Method	Why this method?
Do people who live alongside freeways suffer from asthma more than people who do not live near freeways?	Observational Study OR Experiment	<i>It would be unethical to make people live next to freeways in the hopes of studying its effects with asthma. Furthermore, a researcher cannot randomly assign people where to live. Instead, we would need to observe people who suffer from asthma and record where they live in relation to freeways.</i>
How does being alone or with others affect a person's stress or chill ratings?	Observational Study OR Experiment	<i>The researcher can design an experiment where people are randomly assigned to either be alone or with others. Then, he/she can record the participants' ratings of their stress or chill levels. An observational study is also feasible, but an experiment would allow us to make causal inferences.</i>
Are males or females more frequently late to class?	Observational Study OR Experiment	<i>This is not feasible. The researcher cannot randomly assign gender to participants. He/she would only be able to record the gender of participants and then observe whether or not each student was late to class.</i>
What are the effects of nuclear radiation 48 hours after exposure?	Observational Study OR Experiment	<i>This is highly unethical. A researcher cannot allow participants to be exposed to nuclear radiation. Instead, he/she would need to find people who have already been exposed to nuclear radiation and observe/record the effects after the exposure.</i>
Are males who play violent video games more prone to engage in violent actions than males who play E-rated video games?	Observational Study OR Experiment	<i>The researcher can randomly assign a group of boys to play violent video games and another group to play E-rated games. He/she would then need to follow these boys for some amount of years and record the number of times each one engaged in violent actions.</i>
Who speaks up more when you cut the line, adults or teenagers?	Observational Study OR Experiment	<i>This is not feasible. The researcher cannot randomly assign people to be a teenager or an adult. Instead, he/she would simply record the general age of each person in line and then observe whether or not the participant spoke up if someone cut the line.</i>
What types of rockets and fuel mixtures gets us closest to achieving the speed of light?	Observational Study OR Experiment	<i>This would be too costly. Rockets and fuel are expensive resources, so most researchers would not be able to get the funding to perform any type of experiment. Instead, researchers would simply have to observe and record information about rockets and fuel mixtures that are already being performed.</i>