

**Thinkful Data Science Boot Camp**  
**Unit 2.1 Drill 3**  
**Formulating Good Research Questions**

Categorize each of the following research questions as "good" or "bad", and provide alternative formulations for the bad ones. Save your responses in a document of some kind, submit a link below, and discuss your reasoning with your mentor.

**1. What is the 1994 rate of juvenile delinquency in the U.S.?**

- ☐ *Bad*: this is not a data analysis question.
- ☐ *Alternative Formulation*: In 1994, how does the juvenile delinquency differ among socioeconomic and demographic groups?

**2. What can we do to reduce juvenile delinquency in the U.S.?**

- ☐ *Bad*: this question is too broad and can include many opinions split across political opinion and biases.
- ☐ *Alternative Formulation*: What factor(s) attribute to the reduction of juvenile delinquency rates in the U.S. among different groups?

**3. Does education play a role in reducing juvenile delinquents' return to crime?**

- ☐ *Good*

**4. How many customers does AT&T currently serve in Washington, DC?**

- ☐ *Good*

**5. What factors lead consumers to choose AT&T over other service providers?**

- ☐ *Good*

**6. How can AT&T attract more customers?**

- ☐ *Bad*: this question is too broad and needs to be narrowed down.
- ☐ *Alternative Formulation*: What factors attract new users to AT&T?

**7. Why did the Challenger Shuttle explode?**

- ☐ *Bad*: we already know what caused the explosion so this wouldn't really be a data analysis question. We already know that the o-rings exposed to low temperatures failed to properly seal allowing exhaust to leak.
- ☐ *Alternative Formulation*: At what temperature do the O-rings used in the Challenger Shuttle fail to properly seal?

**8. Which genes are associated with increased risk of breast cancer?**

- ☐ *Good*

**9. Is it better to read to children at night or in the morning?**

☐ *Good*

**10. How does Google's search algorithm work?**

☐ *Bad:* this question would have limited data available so we can only presume how the algorithm works by analysing trends in searched observed.

☐ *Alternative Formulation:* What possible factors affect how Google ranks their search results?