

Task: One Thousand Object Cards

Class discussion about general case.

Challenge:

1. If you had as many objects as you wanted, how big a deck could you make with 1000 different objects on each card, so that each PAIR of cards have EXACTLY ONE object in common?

[Answer: As big as you want! Put one red monster on every card and just fill up the other 999 spots with different objects each time.]

2. Try question 1 again, but this time, insist that not every card has the same object in common. Could you still make the deck as big as you want?

[Answer: This question is much more subtle, but the answer is “no”. Just like the case with two or three objects per card, every card you add reduces how easy it is to pick a new card, and though in this case you could keep going for a long long time, you couldn’t go on forever. You could make about a million cards though!]