For all of the following scenarios, answer the following questions:

1. Is the proposed strategy reasonable?
2. Why or why not?
3. If not, what might be a better strategy and why?

1) Dr. P. is interested in a behavior that can be observed in a variety of species, including humans. Nothing is currently known about how the behavior is controlled neurally. Dr. P. proposes to do some single-unit recordings to gain insight into the neural mechanism.

2) Perceptual decisions are usually made within approximately one second. Models of perceptual decision-making propose that a decision arises from integrating sensory evidence over time until a decision threshold is reached. Decision-related neural activity is therefore expected to ramp up over the course of several hundred milliseconds. Dr. B. wants to perform a BOLD fMRI experiment to test this hypothesis.

3) (Hypothetical) area PTF is known for its heterogeneity. Different neurons can have very different response properties, even when they are very close to each other. PTF neurons are generally known for their high spontaneous activity. A certain subpopulation of PTF neurons responds to auditory stimuli. Dr. G. would like to measure the tuning properties of these neurons and considers an MEG experiment.

4) Dr. K. is interested in how the brain processes complex visual stimuli. Dr. K.'s team used fMRI to identify several regions throughout inferior temporal cortex that became activated in response to the stimuli. Dr. K. proposes to give subjects in a research study one session of low-frequency TMS in the inferior temporal gyrus and then repeat fMRI scanning the next day. Dr. K. will then compare fMRI signal changes with changes in visual perception in the subjects.

5) Dr. C. works on a device that is supposed to extract information about what an observer currently sees from neural activity. Currently, Dr. C. studies how the brain processes color changes and is particularly interested in
a) how soon after a color change the brain can detect it and
b) what brain areas respond to the color change.
Dr. C. designs an ERP experiment given the technique's good temporal resolution to address these questions.